

KEY POINTS (CLASSIFICATION OF LIVING THINGS)

- Classification of things into groups on the basis of similarities and differences among them is called classification.
- Scientists classify organisms into five major groups which are called kingdoms. These five kingdoms are Monera, Protista, Fungi, Plantae and Animalia.
- Kingdom Monera includes bacteria and blue green algae. These are unicellular organisms without nucleus.
- Kingdom Protista includes simple eukaryotic organisms e.g. protozoa and algae.
- Kingdom Fungi is made up of thread like structures called hyphae. Fungi are unicellular, multicellular or filamentous organisms. They lack chlorophyll and cannot make their own food.
- Kingdom Animalia includes multicellular eukaryotic organisms. They cannot make their own food. They depend on other animals and plants for their food.
- Kingdom Plantae includes multicellular eukaryotic organisms. These are autotrophs.
- Mammals are vertebrates with hair or fur on their body. Mothers feed their young ones on their milk.
- Animals like polar bears have thick fur which keeps them warm in intense cold of polar region.
- Birds are the vertebrates with feathers, wings and beak. They have hollow bones and air sacs which reduce their weight and help them in flying.
- Birds like kiwi and ostrich have weak wings but strong legs. They cannot fly rather they run very fast and are called running birds.
- Sparrow, Eagle, crow, parrot, robin, hen and pigeon have strong wings and can fly. They are called flying birds.
- Reptiles are the vertebrates with dry, thick and scaly skin which covers and protects their bodies.
- Amphibians are the vertebrates that can live in water as well as on land. They breathe through lungs or skin.
- Invertebrates are the animals without backbone. Their examples are snails, insects and worms.
- Insects are attracted to flower because of petals and to collect a sugary solution, nectar present in flowers.
- Non-flowering plants do not produce flowers. Gymnosperms (conifers), mosses and ferns are the examples of non-flowering plants.
- Variety of living organisms present in a particular area is known as biodiversity.
- Conservation is the protection of all those things that affect directly or indirectly on the life on earth.

اہم نکات

- چیزوں کو ان کے درمیان مماثلت اور فرق کی بنیاد پر گروہوں میں تقسیم کرنا درجہ بندی کہلاتا ہے۔
- سائنسدانوں نے حیاتیات کو پانچ بڑے گروہوں میں درجہ بندی کیا ہے جنہیں بادشاہی کہا جاتا ہے۔ یہ پانچ ریاستیں مونیرا، پروٹسٹا، فنگی، پلانٹی اور اینیمالیا ہیں۔
 - کنگڈم مونیرا میں بیکٹیریا اور نیلے سبز طحالب شامل ہیں۔ یہ نیوکلئس کے بغیر پونیسیلولر جاندار ہیں۔
 - کنگڈم پروٹسٹا میں سادہ یوکرائیوٹک جاندار شامل ہیں جیسے پروٹوزوا اور طحالب۔
 - کنگڈم فنگی دھاگے جیسے ڈھانچے سے بنی ہے جسے بائفائی کہتے ہیں۔ فنگی یونسلولر، ملٹی سیلولر یا تنت والے جاندار ہیں۔ ان میں کلوروفل کی کمی ہے اور وہ اپنا کھانا خود نہیں بنا سکتے۔
 - کنگڈم اینیمالیا میں ملٹی سیلولر یوکرائیوٹک جاندار شامل ہیں۔ وہ اپنا کھانا خود نہیں بنا سکتے۔ وہ اپنی خوراک کے لیے دوسرے جانوروں اور پودوں پر انحصار کرتے ہیں۔
- میں کثیر خلوی یوکرائیوٹک جاندار شامل ہیں۔ یہ آٹوٹروف ہیں۔ Kingdom Plantae
- ممالیہ جانور ہیں جن کے جسم پر بال یا کھال ہوتی ہے۔ مائیں اپنے بچوں کو اپنا دودھ پلاتی ہیں۔

قطبی ریچھ جیسے جانوروں کی کھال موٹی ہوتی ہے جو قطبی خطے کی شدید سردی میں انہیں گرم رکھتی ہے۔

- پرندے پنکھوں، پروں اور چونچ والے فقاری جانور ہیں۔ ان میں کھوکھلی ہڈیاں اور ہوا کے تھیلے ہوتے ہیں جو ان کا وزن کم کرتے ہیں اور انہیں اڑنے میں مدد دیتے ہیں۔
- کیوی اور شتر مرغ جیسے پرندوں کے پر کمزور لیکن ٹانگیں مضبوط ہوتی ہیں۔ وہ اڑ نہیں سکتے بلکہ بہت تیز دوڑتے ہیں اور انہیں دوڑنے والے پرندے کہا جاتا ہے۔
- چڑیا، عقاب، کوا، طوطا، روبن، مرغی اور کبوتر کے پر مضبوط ہوتے ہیں اور وہ اڑ سکتے ہیں۔ انہیں اڑنے والے پرندے کہتے ہیں۔
- ریگنے والے جانور خشک، موٹی اور کھردری جلد والے ریگنے والے جانور ہیں جو اپنے جسم کو ڈھانپتے ہیں اور ان کی حفاظت کرتے ہیں۔
- امفیسیز وہ فقرے ہیں جو پانی کے ساتھ ساتھ زمین پر بھی رہ سکتے ہیں۔ وہ پھیپھڑوں یا جلد کے ذریعے سانس لیتے ہیں۔
- ریڑھ کی ہڈی کے بغیر جانور ہیں۔ ان کی مثالیں گھونگھے، کیڑے اور کیڑے ہیں۔ Invertebrates
- کیڑے پنکھڑیوں کی وجہ سے پھولوں کی طرف راغب ہوتے ہیں اور پھولوں میں موجود شکاری مخلول، امرت کو جمع کرنے کے لیے۔
- غیر پھولدار پودے پھول نہیں بناتے۔ جمناسپرم (کونیفر)، کائی اور فرن غیر پھولدار پودوں کی مثالیں ہیں۔
- کسی خاص علاقے میں موجود جانداروں کی مختلف اقسام کو حیاتیاتی تنوع کے نام سے جانا جاتا ہے۔
- تحفظ ان تمام چیزوں کا تحفظ ہے جو زمین پر زندگی پر براہ راست یا بالواسطہ اثر انداز ہوتے ہیں۔

EXERCISE QUESTIONS

MULTIPLE CHOICE QUESTIONS

Encircle the correct answer.

1. Invertebrates do not have

- (a) skin
- (b) legs
- (c) backbone
- (d) eyes

2. How many vertebrates are there in the given figure?

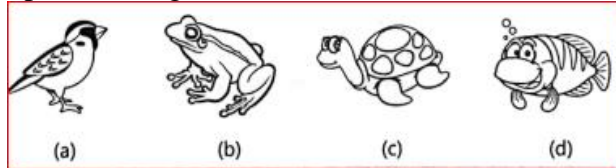
Parrot, snake, elephant, rabbit, tortoise, starfish, bee



- (a) 1
- (b) 3
- (c) 4
- (d) 6

3. Identify amphibian among the animals given below.

Sparrow, frog, tortoise, fish



- (a)
- (b)
- (c)
- (d)

4. The animal shown (Fish) in the figure breathes through

- (a) stomata
- (b) gills
- (c) skin
- (d) lungs

5. Which of the following is a pair of animals with backbone?

- (a) Earthworm, Snail
- (b) Octopus, Mosquito
- (c) Duck, Frog
- (d) Jellyfish, Butterfly

6. The vertebrate with tough scales on its body is

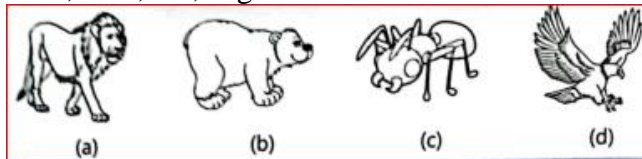
- (a) shark
- (b) crocodile
- (c) lion
- (d) sparrow

7. A mosquito has

- (a) jointed legs
- (b) bony skeleton
- (c) scaly skin
- (d) soft body

8. Identify the insect from the given figures.

Lion, bear, ant, eagle

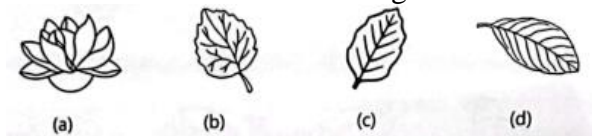


- (a)
- (b)
- (c)
- (d)

9. A pair of plants with two cotyledons in their seeds is

- (a) grass, rice
- (b) orange, grass
- (c) pea, rose
- (d) rice, mango

10. Which one of the following is a leaf of the plant with two cotyledons in its seed?



- (a)
- (b)
- (c)
- (d)

Here are the correct answers:

- (c) backbone
- (d) 6 (Parrot, snake, elephant, rabbit, tortoise)
- (b) frog
- (b) gills
- (c) Duck, Frog
- (b) crocodile
- (a) jointed legs
- (c) ant
- (c) pea, rose
- (c) (This would be a leaf with reticulate venation, typical of dicots)

FILL IN THE BLANKS

1. Division of living organisms into groups on the basis of similarities and differences among them is called_____
2. There are_____ kingdoms.
3. Non-flowering plants do not produce_____
4. Variety of living things present in a particular area is known as _____
5. _____of animals is an important factor due to which animals have become endangered.

Answers:

1. Division of living organisms into groups on the basis of similarities and differences among them is called classification.
2. There are five kingdoms.
3. Non-flowering plants do not produce flowers/seeds.
4. Variety of living things present in a particular area is known as biodiversity.
5. Hunting/Habitat destruction/Loss of habitat of animals is an important factor due to which animals have become endangered.

SHORT QUESTIONS

1. Define vertebrates.
2. Encircle any four vertebrates from the animals given below.

Mosquito, butterfly, bull, hen, starfish, frog, crocodile, snail, bear, scorpion, tiger, snake



3. Define classification of organisms.
4. Write two advantages of classification of organisms.
5. Why are birds placed in the group of vertebrates?
6. Which two body parts of birds make them light weight?
7. Classify plants into two major groups.

8. Distinguish between dicots and monocots.
9. What do you understand by the term "biodiversity"?
10. Define endangered species. Give examples.

بالکل، میں مختصر سوالات کے جوابات دوں گی۔

1. Define vertebrates.

Vertebrates are animals that have a backbone or spinal column.

2. Encircle any four vertebrates from the animals given below.

Bull, hen, frog, crocodile, bear, tiger, snake.

3. Define classification of organisms.

Classification of organisms is the process of grouping living things based on their similarities and differences.

4. Write two advantages of classification of organisms.

It makes the study of organisms easier.

It helps in understanding the relationships between different organisms.

5. Why are birds placed in the group of vertebrates?

Birds are placed in the group of vertebrates because they have a backbone.

6. Which two body parts of birds make them light weight?

Hollow bones and feathers.

7. Classify plants into two major groups.

Flowering plants and non-flowering plants.

8. Distinguish between dicots and monocots.

Dicots: Plants with two cotyledons (seed leaves).

Monocots: Plants with one cotyledon.

9. What do you understand by the term "biodiversity"?

Biodiversity refers to the variety of all forms of life on Earth, including the different plants, animals, and microorganisms, and the ecosystems they are a part of.

10. Define endangered species. Give examples.

Endangered species are those species that are at risk of extinction.

Examples: Snow leopard, Indus river dolphin.

LONG QUESTIONS

1. Describe the characteristics of fish. Give examples.
2. Explain the characteristics of amphibians. Give examples.
4. Enlist the characteristics of reptiles. Give examples.
3. Describe the characteristics of birds. Give examples.
5. Explain the characteristics of mammals. Give examples.
6. Discuss that vertebrates are different from invertebrates.
7. Analyze some of the factors caused by humans which affect biodiversity.
8. What measures can be taken for the conservation of endangered species?

- **Describe the characteristics of fish. Give examples.**

- **Characteristics:**
 - They live in water.
 - They have gills for breathing.
 - They have fins for swimming.
 - They have scales covering their body.
 - They are cold-blooded.
- **Examples:** Salmon, shark, goldfish, trout.

- **Explain the characteristics of amphibians. Give examples.**

- **Characteristics:**
 - They live both in water and on land.
 - They have smooth, moist skin.
 - They breathe through gills when young and through lungs and skin when adults.
 - They are cold-blooded.
 - They go through metamorphosis.
- **Examples:** Frogs, toads, salamanders.

- **Describe the characteristics of birds. Give examples.**

- **Characteristics:**
 - They have feathers.
 - They have wings.
 - They have beaks.
 - They lay eggs.
 - They are warm-blooded.
 - They have hollow bones.
- **Examples:** Eagles, sparrows, penguins, owls.

- **Enlist the characteristics of reptiles. Give examples.**

- **Characteristics:**
 - They have dry, scaly skin.
 - They lay eggs.
 - They are cold-blooded.
 - They breath through lungs.
- **Examples:** Snakes, lizards, turtles, crocodiles.

- **Explain the characteristics of mammals. Give examples.**

- **Characteristics:**
 - They have hair or fur.
 - They give birth to live young (except for monotremes).
 - They produce milk to feed their young.

- They are warm-blooded.
 - They breathe through lungs.
- **Examples:** Dogs, cats, humans, whales, bats.
- **Discuss that vertebrates are different from invertebrates.**
 - **Vertebrates:**
 - Have a backbone or spinal column.
 - Have a well-developed internal skeleton.
 - Generally larger in size.
 - Have a complex nervous system.
 - **Invertebrates:**
 - Lack a backbone.
 - May have an exoskeleton or no skeleton.
 - Generally smaller in size.
 - Have a simpler nervous system.
- **Analyze some of the factors caused by humans which affect biodiversity.**
 - **Habitat destruction:** Deforestation, urbanization, and agricultural expansion destroy natural habitats.
 - **Pollution:** Air, water, and soil pollution harm living organisms.
 - **Overexploitation:** Overhunting, overfishing, and excessive harvesting of resources deplete populations.
 - **Introduction of invasive species:** Non-native species can disrupt ecosystems and outcompete native species.
 - **Climate change:** Rising temperatures and changing weather patterns alter habitats and affect species survival.
- **What measures can be taken for the conservation of endangered species?**
 - **Habitat protection:** Establishing national parks and reserves to protect natural habitats.
 - **Anti-poaching measures:** Enforcing laws to prevent illegal hunting and trafficking.
 - **Captive breeding programs:** Breeding endangered species in captivity to increase their numbers.
 - **Restoration of habitats:** Restoring damaged ecosystems to provide suitable habitats.
 - **Public awareness campaigns:** Educating the public about the importance of conservation.
 - **Legislation and policies:** Implementing laws and policies to protect endangered species and their habitats.
 - **Sustainable practices:** Promoting sustainable use of resources to reduce the impact on biodiversity.

PICTURE RIDDLES

Using the below diagram, give one example of each of the groups of vertebrates in the table above.

Groups of vertebrates

Fish

Amphibia

Reptiles

Birds

Mammals

Example??

Groups of Vertebrates	Examples
Fish	
Amphibia	
Reptiles	
Birds	
Mammals	

Sun

pine

cloud

hawk

deer

rabbit

frog

turtle

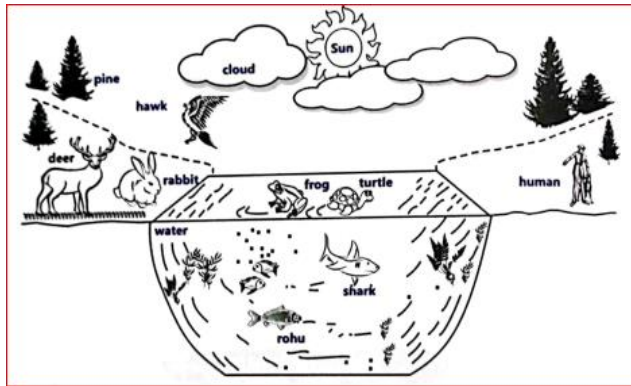
human

water

shark

rohu

Groups of Vertebrates	Examples
Fish	Shark, Rohu
Amphibia	Frog
Reptiles	Turtle
Birds	Hawk
Mammals	Deer, Rabbit, Human



THINK OUT OF THE BOX

1. Is there any insect which never sleeps?
2. What part of the body is used by butterfly to taste the things?
3. Which molluscs have 3 hearts?

1. Is there any insect which never sleeps?

While "never" is hard to prove, ants are known for very short, frequent rests rather than long sleep cycles. So, they come closest to seemingly never sleeping.

2. What part of the body is used by butterfly to taste the things?

Butterflies taste with their feet.

3. Which molluscs have 3 hearts?

Octopuses have three hearts.

PROJECT

Compile a scrap book and paste the pictures of endangered and extinct species.

KEY POINTS (MICROORGANISMS)

The organisms which cannot be seen with the help of naked eye rather can be seen with the help of microscope are called microorganisms.

- Viruses are not made up of cells. They are merely particles made up of proteins and nucleic acid (DNA/RNA).

Bacteria are prokaryotic unicellular microorganisms. They are found everywhere around us.

They are of different shapes i.e. spiral, rod-shaped or comma shaped

- Fungi get their food by absorptive mode of nutrition from living or dead bodies.

- Microorganisms live in other organisms for food and shelter. Few of them cause diseases and are called parasites/pathogens.

- Many bacteria live in our intestine and help us in digestion of food. These are friendly bacteria.

Microorganisms which break down complex substances into simpler one are called decomposers while the phenomenon is called decomposition.

- Infectious diseases spread from one individual to another. For example, dengue common cold and polio etc.

People can become sick if they drink contaminated water containing germs.

The organisms which spread diseases from person to person are called vectors eg Malaria is spread by female 'Anopheles' mosquito while dengue by female Aedes mosquito.

Antibiotics are used to kill bacteria and are obtained from microorganisms.

- Vaccines are actually weak form of germs which are injected in our body. Our body fights against them very well and kill them.

اہم نکات

وہ جاندار جو نگنی آنکھ سے نہیں دیکھے جاسکتے بلکہ خوردبین کی مدد سے دیکھے جاسکتے ہیں انہیں مائیکرو آرگنزم کہتے ہیں۔

- سے بنے ذرات ہیں۔ (DNA/RNA) وائرس خلیات سے نہیں بنتے ہیں۔ وہ محض پروٹین اور نیوکلک ایسڈ

بیکٹیریا پروکاریوٹک یونیسیلولر مائیکرو جینزم ہیں۔ وہ ہمارے آس پاس ہر جگہ پائے جاتے ہیں۔ وہ مختلف شکلوں کے ہوتے ہیں جیسے سربیل، چھڑی کی شکل یا کوما کی شکل میں

- پھپھوندی اپنی خوراک زندہ یا مردہ لاشوں سے غذائیت کے جذب کرنے والے طریقے سے حاصل کرتی ہے۔

مائیکرو جینزم دوسرے جانداروں میں خوراک اور پناہ گاہ کے لیے رہتے ہیں۔ ان میں سے کچھ بیماریوں کا سبب بنتے ہیں اور انہیں پرجیوی / پیتھوجینز کہتے ہیں۔

- بہت سے بیکٹیریا ہماری آنت میں رہتے ہیں اور کھانے کو ہضم کرنے میں ہماری مدد کرتے ہیں۔ یہ دوستانہ بیکٹیریا ہیں۔

مائیکرو جینزم جو پیچیدہ مادوں کو آسان میں توڑ دیتے ہیں انہیں ڈیکپوزر کہا جاتا ہے جبکہ اس رجحان کو سڑنا کہا جاتا ہے۔

- متعدی بیماریاں ایک فرد سے دوسرے میں پھیلتی ہیں۔ مثلاً ڈینگی عام زکام اور پولیو وغیرہ۔

اگر لوگ جراثیم پر مشتمل آلودہ پانی پیتے ہیں تو وہ بیمار ہو سکتے ہیں۔

وہ جاندار جو انسان سے دوسرے انسان میں بیماریاں پھیلاتے ہیں وہ ویکٹر کہلاتے ہیں مثلاً طیر یا مادہ 'انوفیلز' مچھر سے جبکہ ڈینگی مادہ ایڈس مچھر سے پھیلتا ہے۔

اینٹی بائیوٹکس بیکٹیریا کو مارنے کے لیے استعمال کی جاتی ہیں اور مائیکرو جینزموں سے حاصل کی جاتی ہیں۔

- ویکسین دراصل جراثیم کی کمزور شکل ہیں جو ہمارے جسم میں داخل کی جاتی ہیں۔ ہمارا جسم ان سے بہت اچھی طرح لڑتا ہے اور انہیں مار ڈالتا ہے۔

EXERCISE QUESTIONS

MULTIPLE CHOICE QUESTIONS

Encircle the correct answer.

1. Which of the following is a pair of microorganisms?
 - (a) Snail, jellyfish
 - (b) Sparrow, frog
 - (c) Snake, earthworm
 - (d) Bacteria, yeast
2. Yeast is an example of
 - (a) virus
 - (b) bacteria
 - (c) fungi
 - (d) algae
3. Mushroom is an example of
 - (a) virus
 - (b) bacteria
 - (c) fungi
 - (d) algae
4. Tuberculosis and tetanus are caused by
 - (a) virus
 - (b) bacteria
 - (c) fungi
 - (d) algae
5. The microorganism which causes rust and smut in plants is
 - (a) bacteria
 - (b) algae.
 - (c) fungi
 - (d) virus
6. Anthrax is a diseases can be found in
 - (a) animals
 - (b) humans
 - (c) plants
 - (d) all of these
7. Antibiotics may be used to cure
 - (a) hepatitis
 - (b) AIDS
 - (c) typhoid
 - (d) ringworm
8. AIDS and dengue are caused by
 - (a) virus
 - (b) fungi
 - (c) bacteria
 - (d) algae
9. Which of the following disease transfer germs through sneezing and coughing?
 - (a) common cold
 - (b) cholera

- (c) tetanus
- (d) polio
- 10. Malaria and dengue are spread by
- (a) ant
- (b) mosquito
- (c) wasp
- (d) housefly

Here are the correct answers:

- (d) Bacteria, yeast
- (c) fungi
- (c) fungi
- (b) bacteria
- (c) fungi
- (d) all of these
- (c) typhoid
- (a) virus
- (a) common cold
- (b) mosquito

FILL IN THE BLANKS

1. _____ cannot be seen with naked eye.
2. There are main _____ groups of microorganisms.
3. _____ is used in the formation of medicine
4. Dead bodies do not get accumulated on earth due to _____
5. some diseases are spread by direct contact with an. _____ person.

Here are the answers to the fill-in-the-blanks:

Microorganisms cannot be seen with the naked eye.

There are main five groups of microorganisms. (Bacteria, Viruses, Fungi, Protozoa, Algae)

Fungi/Bacteria/Microorganisms are used in the formation of medicine. (All three can be used)

Dead bodies do not get accumulated on earth due to decomposers/decomposition.

Some diseases are spread by direct contact with an infected person.

SHORT QUESTIONS

1. Suggest any two ways to avoid viral diseases.
2. Name any two diseases caused by bacteria.
3. How do fungi get its food?
4. How microorganisms are used in making food?
5. How fungi are used in making medicines?

Here are the short answers:

1. **Suggest any two ways to avoid viral diseases.**
Wash hands frequently.
Get vaccinated.
2. **Name any two diseases caused by bacteria.**
Tuberculosis (TB)

Strep throat

3. How do fungi get its food?

They absorb nutrients from dead or living organisms.

4. How microorganisms are used in making food?

Bacteria and yeast are used in fermentation. (e.g., yogurt, bread)

5. How fungi are used in making medicines?

Penicillin is made from a fungus.

LONG QUESTIONS

1. Discuss the role of decomposers in the environment.

2. Explain disadvantages of microorganisms.

3. Describe some ways of spreading infectious diseases and their transmission to humans.

4. List five ways to avoid infections.

Here are the answers to the questions:

1. Discuss the role of decomposers in the environment.

Decomposers, like bacteria and fungi, break down dead organic matter (plants and animals). This process releases essential nutrients back into the soil, which plants can then use to grow. They recycle nutrients, preventing the accumulation of dead organisms and keeping the ecosystem healthy.

2. Explain disadvantages of microorganisms.

Microorganisms can cause diseases in humans, animals, and plants. They can spoil food, causing it to rot or become toxic. Some can damage materials like wood and textiles. They can also create toxins that poison food and water supplies.

3. Describe some ways of spreading infectious diseases and their transmission to

humans.

Airborne transmission: Through coughing or sneezing, releasing droplets containing pathogens.

Direct contact: Touching an infected person or contaminated surface.

Foodborne transmission: Eating contaminated food or drinking contaminated water.

Waterborne transmission: Drinking water contaminated with pathogens.

Vector-borne transmission: Through insects like mosquitoes or ticks.

Bloodborne transmission: Through contact with infected blood.

4. List five ways to avoid infections.

Wash hands frequently with soap and water.

Get vaccinated against preventable diseases.

Practice good hygiene, including covering coughs and sneezes.

Avoid close contact with sick individuals.

Cook food thoroughly and store it properly.

THINK OUT OF THE BOX

1. At which temperature bacteria remains in stationary phase?
2. Enlist your favourite food items made by microorganisms.
3. Have you ever seen the fungus in real life? Discuss it.

Here are very short answers:

1. Stationary phase temperature?

Depends on the bacteria; when growth stops.

2. Microorganism foods?

Yogurt, bread, cheese.

3. Seen fungus?

Yes, mold on food/mushrooms.

4. Encircle the diseases which are caused by virus.

Dengue

Cholera Typhoid

Influenza

Smut

Polio

Hepatitis

Tetanus

Here are the diseases from the list caused by viruses:

- Dengue
- Influenza
- Polio
- Hepatitis

5. Match the column.

Column A Microorganism

Bacteria

Fungi

Virus

Column B Disease

Typhoid

Ringworm

Polio

Column A Microorganism	Column B Disease
Virus	Typhoid
Bacteria	Ringworm
Fungi	Polio

Here's the correct matching:

- Virus - Polio
- Bacteria - Typhoid
- Fungi - Ringworm

WEB LINKS

Microorganism

<https://www.youtube.com/watch?v=JZjzQhFG6Ec> Prevent Diseases

<https://www.youtube.com/watch?v=X0OxrsgAP2w>

PROJECT

Try to make yogurt / cake with the help of your mother which shows microbial activity.

KEY POINTS (FLOWERS AND SEEDS)

- In flowering plants, seeds are present inside fruits while in conifers (gymnosperms), seeds are found in cones.
 - The development of embryo in the seed into a new tiny plant is called seed germination.
- Seed has an endosperm, a structure which stores food for the embryo.
Radicle is the part of a plant embryo that develops into a tiny root.
Plumule is the part of a plant embryo that develops into a tiny shoot.
- Important conditions for seed germination are water, suitable temperature and air.
- The ideal temperature needed for seed germination ranges between $10^{\circ} - 35^{\circ}\text{C}$.

اہم نکات

- پھول دار پودوں میں، بیج پھلوں کے اندر موجود ہوتے ہیں جبکہ کوئیفرز (جمناسپرمز) میں، بیج ششک میں پائے جاتے ہیں۔
 - بیج میں جنین کی ایک نئے چھوٹے پودے میں نشوونما کو بیج انکرن کہتے ہیں۔
 - بیج میں ایک اینڈوسپرم ہوتا ہے، ایک ایسا ڈھانچہ جو جنین کے لیے خوراک ذخیرہ کرتا ہے۔
 - ریڈیکل ایک پودے کے جنین کا حصہ ہے جو ایک چھوٹی جڑ میں تیار ہوتا ہے۔
 - ایک پودوں کے جنین کا حصہ ہے جو ایک چھوٹی سی ٹہن میں تیار ہوتا ہے۔ Plumule
 - بیج کے انکرن کے لیے اہم حالات پانی، مناسب درجہ حرارت اور ہوا ہیں۔
- کے درمیان ہوتا ہے۔ $10^{\circ} - 35^{\circ}\text{C}$ بیج کے انکرن کے لیے مطلوبہ مثالی درجہ حرارت

EXERCISE QUESTIONS

MULTIPLE CHOICE QUESTIONS

Encircle the correct answer.

1. Sepals are in colour.

- (a) green
- (b) red
- (c) blue
- (d) orange

2. contains pollen grains.

- (a) petals
- (b) style
- (c) anther
- (d) filament

3. In self-pollination is occurred.

- (a) potato
- (b) apple
- (c) pumpkin
- (d) daffodils

4. Potatoes have bulbs in the form of

- (a) eye
- (b) ears
- (c) nose
- (d) lips

5. Which of the following seeds is kidney shaped?

- (a) corn
- (b) bean
- (c) rice
- (d) wheat

6. The hole in the testa is used for the absorption of.

- (a) air
- (b) heat
- (c) water
- (d) food

7. The embryo of mango seed consists of radicle, plumule and

- (a) testa
- (b) cotyledons
- (c) endosperm
- (d) micropyle

8. In a seed, shoot originates from the

- (a) micropyle
- (b) endosperm
- (c) plumule
- (d) radicle

9. In dicot seeds, food is stored in
(a) endosperm
(b) cotyledons
(c) plumule
(d) radicle
10. Function of cotyledon in maize seed is to
(a) store food
(b) get food
(c) digest food
(d) prepare food
11. During germination of seed water helps to burst
(a) cotyledon
(b) seed coat
(c) micropyle
(d) plumule
12. In seed, root originates from the
(a) cotyledon
(b) endosperm
(c) plumule
(d) radicle
13. In monocot seed, food is stored in
(a) seed coat
(b) endosperm
(c) cotyledons
(d) plumule
14. Most seeds germinate at temperature range
(a) 0-10 °C
(b) 10-35 °C
(c) 35-60°C
(d) 60-70 °C
15. When seed is sown, it swells due to
(a) absorption of water
(b) temperature
(c) soil
(d) air

Here are the correct answers:

- (a) green
(c) anther
(d) daffodils
(a) eye
(b) bean
(c) water
(b) cotyledons
(c) plumule

- (b) cotyledons
- (b) get food
- (b) seed coat
- (d) radicle
- (b) endosperm
- (b) 10-35 °C
- (a) absorption of water

FILL IN THE BLANKS

1. _____ is an attractive and important part of the plant.
2. The transfer of pollen grains from the anther to the stigma of same flower is known as _____ pollination.
3. Outer most cover of seed is called _____
4. Maize seed has _____ cotyledon.
5. _____ is an important factor which is necessary for chemical reactions that occur inside the seeds.

Here are the answers to the fill-in-the-blanks:

Flower is an attractive and important part of the plant.

The transfer of pollen grains from the anther to the stigma of same flower is known as self-pollination.

Outer most cover of seed is called seed coat.

Maize seed has one cotyledon.

Water is an important factor which is necessary for chemical reactions that occur inside the seeds.

SHORT QUESTIONS

1. Define germination of seed.
2. Define sexual reproduction in plants.
3. What do you mean by layering?
4. Analyze two differences between chick pea and maize seeds.

Here are the short answers:

1. Define germination of seed.

Germination is the process where a seed sprouts and begins to grow into a new plant.

2. Define sexual reproduction in plants.

Sexual reproduction in plants involves the fusion of male and female gametes (pollen and ovule) to produce a seed.

3. What do you mean by layering?

Layering is a method of plant propagation where a stem is bent and covered with soil to induce rooting while still attached to the parent plant.

4. Analyze two differences between chick pea and maize seeds.

Chick pea: Dicot (two cotyledons), seed splits into two halves.

Maize: Monocot (one cotyledon), seed does not split into two halves.

LONG QUESTIONS

1. Analyze structure of flower in detail.
2. Define pollination and describe types of pollination with examples.
3. Explain that plants can reproduce by asexual reproduction.
4. Identify the structure of a maize seed.
5. Define the conditions necessary for germination of a seed.

- **Analyze structure of flower in detail.**

- A flower typically consists of four main parts:
 - **Sepals:** These are the outermost, usually green, leaf-like structures that protect the developing bud.
 - **Petals:** These are the colorful, often showy parts that attract pollinators.
 - **Stamens:** These are the male reproductive organs, consisting of a filament and an anther, which produces pollen grains.
 - **Pistil/Carpel:** This is the female reproductive organ, consisting of the stigma (where pollen lands), style (the neck), and ovary (containing ovules).
 - The ovary then becomes the fruit, and the ovules become the seeds.

- **Define pollination and describe types of pollination with examples.**

- Pollination is the transfer of pollen grains from the anther of a stamen to the stigma of a pistil.
- **Types:**
 - **Self-pollination:** Pollen transfer within the same flower or between flowers of the same plant. Example: Peas.
 - **Cross-pollination:** Pollen transfer between flowers of different plants of the same species. Example: Apples.
 - Pollination can be carried out by wind, water, insects, and animals.

- **Explain that plants can reproduce by asexual reproduction.**

- Asexual reproduction in plants involves the production of new plants from a single parent, without the fusion of gametes.
- Methods include:
 - **Vegetative propagation:** Using parts like stems (cuttings, layering), roots (runners), or leaves to grow new plants.
 - **Budding:** A new plant grows from a bud on the parent plant.
 - **Fragmentation:** The plant breaks into pieces, and each piece grows into a new plant.
 - Asexual reproduction creates clones of the parent plant.

- **Identify the structure of a maize seed.**

- A maize seed is a monocot seed.
- It consists of:
 - **Seed coat:** The outer protective layer.
 - **Endosperm:** The main food storage tissue.
 - **Cotyledon:** A single cotyledon called the scutellum, which absorbs nutrients from the endosperm.
 - **Plumule:** The embryonic shoot.
 - **Radicle:** The embryonic root.
 - **Micropyle:** A small pore for water absorption.

- **Define the conditions necessary for germination of a seed.**

- Germination requires:
 - **Water:** To activate enzymes and initiate growth.
 - **Oxygen:** For respiration and energy production.
 - **Suitable temperature:** Optimal for enzyme activity and growth.
 - **Light (for some seeds):** Some seeds require light to germinate, while others germinate in darkness.
 - Suitable soil conditions.

THINK OUT OF THE BOX

1. Interpret that flowers do not remain fresh after few days?
2. Enlist some plants which are reproduced by sexual and asexual reproduction,
3. Name some insects which help in pollination.

Let's think outside the box:

1. Interpret that flowers do not remain fresh after a few days?

Flowers are designed for a short lifespan, mainly for reproduction. After pollination, they begin to wither as their purpose is fulfilled. The plant redirects energy to seed/fruit development. Also, natural decay processes and environmental factors (temperature, humidity) contribute to their decline.

2. Enlist some plants which are reproduced by sexual and asexual reproduction.

- Sexual & Asexual:
 - Roses: Seeds (sexual) or cuttings (asexual).
 - Strawberries: Seeds (sexual) or runners (asexual).
 - Potatoes: Seeds (sexual) or tubers (asexual).
 - Grapes: Seeds (sexual) or cuttings/layering (asexual).
 - Apples: Seeds (sexual) or grafting (asexual).

3. Name some insects which help in pollination.

Bees (honeybees, bumblebees)
Butterflies

Moths
Beetles
Flies

PROJECT

Make a 3D project of flower and label its four basic floral parts with the help of your teachers or parents.

KEY POINTS (ENVIRONMENTAL POLLUTION)

Environment is everything that is around us. It includes living or non-living things.

- All living things exchange different materials with their environment e.g. we take oxygen, water, food, and material for making buildings, cars, clothes etc. from our environment. Burning of fuel (petrol, diesel, coal etc.) in homes, industries, vehicles and power houses is the biggest cause of air pollution.

Untreated sewage and industrial waste are the biggest sources of water pollution.

- Agricultural wastes, fertilizers, chemicals sprayed on crops to kill insects, domestic trash and solid waste from factories are the major causes of land pollution.

Ozone layer is a protective layer in the atmosphere which protects us from harmful radiations of the Sun which may cause skin cancer in humans. Chlorofluorocarbons (CFCs) are damaging ozone layer.

- We must reduce the use of plastic items and other non-biodegradable materials.

Biodegradable materials can be decomposed into simpler substances by natural process and mix in the soil for reuse by plants and animals e.g. Paper, clothes, animal dung etc.

- Non-Biodegradable materials cannot be decomposed into simpler substances by natural process e.g. plastic, rubber etc.

The burning of wastes at very high temperature is called incineration.

Non biodegradable materials can be reduced, re-used and re-cycled. This is 3R strategy.

اہم نکات

ماحول ہر وہ چیز ہے جو ہمارے آس پاس ہے۔ اس میں جاندار یا غیر جاندار چیزیں شامل ہیں۔

- تمام جاندار اپنے ماحول کے ساتھ مختلف مواد کا تبادلہ کرتے ہیں جیسے ہم اپنے ماحول سے عمارتیں، کاریں، کپڑے وغیرہ بنانے کے لیے آکسیجن، پانی، خوراک اور مواد لیتے ہیں۔ گھروں، صنعتوں، گاڑیوں اور پاور ہاؤسز میں ایندھن (پٹرول، ڈیزل، کوئلہ وغیرہ) کا جلاتا فضائی آلودگی کی سب سے بڑی وجہ ہے۔

غیر علاج شدہ سیوریج اور صنعتی فضلہ آبی آلودگی کا سب سے بڑا ذریعہ ہیں۔

- زرعی فضلہ، کھاد، کپڑے، مکڑیوں کو مارنے کے لیے فصلوں پر چھڑکایا جانے والا کیمیکل، گھریلو کچر اور فیکٹریوں کا ٹھوس فضلہ زمین کی آلودگی کی بڑی وجوہات ہیں۔

اوزون کی تہہ کو (CFCs) اوزون کی تہہ فضائی میں ایک حفاظتی تہہ ہے جو ہمیں سورج کی نقصان دہ شعاعوں سے بچاتی ہے جو انسانوں میں جلد کے کینسر کا سبب بن سکتی ہے۔ کلوروفلوروکاربن نقصان پہنچا رہے ہیں۔

- ہمیں پلاسٹک کی اشیاء اور دیگر غیر بائیو ڈیگر ایبل مواد کا استعمال کم کرنا چاہیے۔

باؤڈیگر ایبل مواد کو قدرتی عمل کے ذریعے آسان مادوں میں گلا یا جاسکتا ہے اور پودوں اور جانوروں کے دوبارہ استعمال کے لیے مٹی میں ملایا جاسکتا ہے جیسے کاغذ، کپڑے، جانوروں کا گوشت وغیرہ۔

- غیر بائیو ڈیگر ایبل مواد کو قدرتی عمل کے ذریعے آسان مادوں میں نہیں گلا یا جاسکتا مثلاً پلاسٹک، ربڑ وغیرہ۔

بہت زیادہ درجہ حرارت پر کچرے کو جلانے کو جلانا کہا جاتا ہے۔

حکمت عملی ہے۔ R غیر بائیو ڈیگر ایبل مواد کو کم کیا جاسکتا ہے، دوبارہ استعمال کیا جاسکتا ہے اور دوبارہ سائیکل کیا جاسکتا ہے۔ یہ 3

EXERCISE QUESTIONS

MULTIPLE CHOICE QUESTIONS

Encircle the correct answer.

1. Mixing of in environment causes air pollution.

- (a) smoke
- (b) oxygen
- (c) nitrogen
- (d) water vapours

2. The process shown in the figure is

- (a) pollination
- (b) condensation
- (c) evaporation
- (d) pollution

3. Throwing plastic bags at open places causes,

- (a) land pollution
- (b) air pollution
- (c) noise pollution
- (d) water pollution

4. Brick kiln causes

- (a) land pollution
- (b) water pollution
- (c) air pollution
- (d) noise pollution

5. A cause of tuberculosis (lungs disease) may be

- (a) water pollution
- (b) land pollution
- (c) noise pollution
- (d) air pollution

6. The cause of acid rain is

- (a) water pollution
- (b) land pollution
- (c) noise pollution
- (d) air pollution

7. Raw sewage causes to die.

- (a) bacteria
- (b) virus
- (c) fish
- (d) fungi

8. Land pollution can be reduced by

- (a) recycling the plastic wastes
- (b) keeping vehicles in good repair
- (c) avoiding excessive use of loudspeaker
- (d) removing dangerous gases from smoke

9. Air pollution can be controlled by

- (a) growing more forests

- (c) burning of wastes
- (b) using pesticides
- (d) setting up industries
- 10. Which of the following cannot be decomposed by fungi?
 - (a) Leather
 - (b) Ceramics
 - (c) Wood
 - (d) Wool
- 11. Which one of the following is non-biodegradable?
 - (a) Fruit
 - (b) Leather
 - (c) Cotton
 - (d) Plastics
- 12. Identify the group which contains only non-biodegradable materials
 - (a) Metals, glass, styrofoam
 - (b) Plastic, cotton, grass
 - (c) Fruit, leather, ceramics
 - (d) Vegetables, paper, iron

Here are the correct answers:

- (a) smoke
- (d) pollution (specifically, air pollution from industrial emissions)
- (a) land pollution
- (c) air pollution
- (d) air pollution
- (d) air pollution
- (c) fish
- (a) recycling the plastic wastes
- (a) growing more forests
- (b) Ceramics
- (d) Plastics
- (a) Metals, glass, styrofoam

FILL IN THE BLANKS

1. Everything around us makes our _____ .
2. Unwanted materials and harmful substances present in the environment is known as _____.
3. _____ pollution slows down the process of photosynthesis.
4. Cholera and typhoid are the diseases caused by _____ pollution.
5. The inner atmosphere of the green house is _____.

Here are the answers to the fill-in-the-blanks:

Everything around us makes our environment.

Unwanted materials and harmful substances present in the environment is known as pollutants/pollution.

Air pollution slows down the process of photosynthesis.

Cholera and typhoid are the diseases caused by water pollution.

The inner atmosphere of the greenhouse is warmer.

SHORT QUESTIONS

1. Define pollution.
2. Define pollutants.
3. What are the causes of water pollution?
4. What are the causes of land pollution?
5. Define greenhouse effect.

Here are the short answers:

1. Define pollution.

Pollution is the introduction of harmful substances or contaminants into the environment.

2. Define pollutants.

Pollutants are harmful substances or contaminants that cause pollution.

3. What are the causes of water pollution?

Industrial waste, sewage, agricultural runoff, and dumping of trash.

4. What are the causes of land pollution?

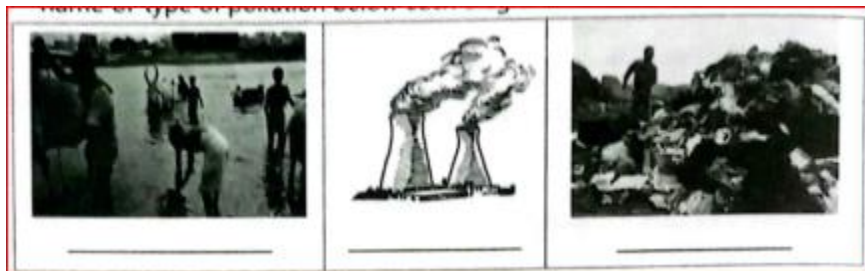
Improper waste disposal, industrial waste, pesticides, and mining activities.

5. Define greenhouse effect.

The greenhouse effect is the trapping of heat by gases in the Earth's atmosphere, leading to a rise in temperature.

PICTURE RIDDLES

Different types of pollution are shown in the diagrams given below. Write the name of type of pollution below each diagram.



For example, you could say:

"Diagram 1: Shows a factory with smoke coming out of a chimney."

"Diagram 2: Shows trash floating in a river."

"Diagram 3: Shows a pile of garbage on the ground."

"Diagram 4: Shows a street with many cars emitting exhaust fumes."

Once you provide that information, I can tell you the type of pollution shown in each diagram.

LONG QUESTIONS

1. How air pollution effects the life of organisms on Earth?
2. Differentiate between biodegradable and non-biodegradable materials by giving relevant examples.
3. How do non-biodegradable materials affect our environment?
4. Non-biodegradable materials cannot be recycled in the environment by nature. Suggest some ways to reduce the impact of non-biodegradable materials.

Here are the detailed answers:

1. How air pollution affects the life of organisms on Earth?

Air pollution causes respiratory problems in animals and humans, like asthma and lung cancer.¹ It damages plant life by hindering photosynthesis and causing acid rain, which harms soil and water.² It contributes to climate change, leading to extreme weather events and habitat destruction.³ Overall, it reduces biodiversity and negatively impacts ecosystem health.⁴

2. Differentiate between biodegradable and non-biodegradable materials by giving relevant examples.

Biodegradable materials:

These can be broken down naturally by microorganisms into simpler substances.⁵

Examples: Food scraps, paper, wood, leaves, cotton.⁶

Non-biodegradable materials:

These cannot be broken down naturally and persist in the environment for a long time.⁷

Examples: Plastics, glass, metals, synthetic fabrics.⁸

3. How do non-biodegradable materials affect our environment?

They accumulate in landfills, taking up space and creating pollution.⁹

Plastics can break down into microplastics, which contaminate water and soil, harming wildlife.¹⁰

They can release toxic chemicals into the environment.¹¹

They can block drainage systems, leading to flooding.¹²

They can cause harm to wildlife who mistake them for food.¹³

4. Non-biodegradable materials cannot be recycled in the environment by nature.¹⁴

Suggest some ways to reduce the impact of non-biodegradable materials.

Reduce: Minimize the use of non-biodegradable items.¹⁵

Reuse: Find alternative uses for non-biodegradable materials.

Recycle: Properly recycle materials like plastics, glass, and metals.¹⁶

Replace: Use biodegradable alternatives whenever possible.

Proper disposal: Dispose of non-biodegradable waste responsibly.

Support policies that reduce the use of single use plastics.¹⁷

THINK OUT OF THE BOX

1. Why we cannot breathe easily in a smoky environment?
2. Why do we feel a prominent change in the environment of hilly areas as compared to plane areas?
3. Enlist the biodegradable and non-biodegradable materials from your surroundings.

Let's think outside the box:

1. Why we cannot breathe easily in a smoky environment?

Smoke contains particulate matter and harmful gases (like carbon monoxide) that irritate the respiratory system. These particles can block the airways and trigger inflammation, making it difficult for the lungs to extract oxygen. Also, carbon monoxide reduces the blood's ability to carry oxygen.

2. Why do we feel a prominent change in the environment of hilly areas as compared to plane areas?

Altitude: Hilly areas have lower air pressure and less oxygen, affecting breathing.

Temperature: Hilly areas are typically cooler due to altitude and wind patterns.

Vegetation: Hilly areas often have different plant life, affecting air quality and humidity.

Topography: The terrain influences wind patterns, rainfall, and sunlight exposure.

Human Influence: Hilly areas tend to have less human development, leading to less pollution.

3. Enlist the biodegradable and non-biodegradable materials from your surroundings.

- Biodegradable:
 - Food scraps (fruit peels, vegetable waste)
 - Paper (newspapers, cardboard)
 - Wood (sticks, fallen leaves)
 - Cotton clothing
 - Grass clippings
- Non-biodegradable:
 - Plastic bottles and bags
 - Glass jars and bottles
 - Metal cans and foil
 - Synthetic fabrics (polyester, nylon)
 - Electronic waste (batteries, old devices)

WEB LINK

pollution

<https://www.youtube.com/watch?v=5FWvbui6ook>

PROJECT

Design a model of green house effect.

KEY POINTS (Physical and Chemical Changes of Matter)

All things around us are made up of matter e.g. food, water, air, table, chair etc.

Matter is found in three states i.e. solid, liquid and gas. Examples of solids are chair, stone.

Examples of liquids are water, blood and honey. Air, CNG, LPG, water vapours are examples of gases.

. Solids have definite volume because of strong forces of attraction between particles, they cannot leave their position so they have definite volume.

Liquids cannot be compressed because particles of liquids cannot be brought further closer because of very little spaces between particles.

Gases can flow in all directions e.g. spray of perfume. Because their particles move freely in all directions.

- Physical changes may cause change in size, shape and texture but no new material is formed
- Processes involved in change of states of matter are melting, sublimation, freezing, boiling, evaporation, condensation.
- Wet clothes dry because of evaporation. It speeds up as the temperature increases that's why wet clothes dry easily in summer than winter.
- Evaporation causes cooling effect. Cooling effect of evaporation is used in refrigerators and air conditioners etc.
- Concentration is a measure of how much solute dissolved in solvent.

اہم نکات

ہمارے آس پاس کی تمام چیزیں مادے سے بنی ہیں جیسے کھانا، پانی، ہوا، میز، کرسی وغیرہ

مادہ تین حالتوں میں پایا جاتا ہے یعنی ٹھوس، مائع اور گیس۔ ٹھوس چیزوں کی مثالیں کرسی، پتھر ہیں۔ مائع کی مثالیں پانی، خون اور شہد ہیں۔ ہوا، سی این جی، ایل پی جی، پانی کے بخارات گیسوں کی مثالیں ہیں۔

ذرات کے درمیان کشش کی مضبوط قوتوں کی وجہ سے ٹھوس کا قطعی حجم ہوتا ہے، وہ اپنی پوزیشن نہیں چھوڑ سکتے اس لیے ان کا حجم قطعی ہوتا ہے۔

مائع کو کمپریس نہیں کیا جاسکتا کیونکہ ذرات کے درمیان بہت کم جگہ ہونے کی وجہ سے مائع کے ذرات کو مزید قریب نہیں لایا جاسکتا۔

گیسیں تمام سمتوں میں بہہ سکتی ہیں جیسے خوشبو کا پھیلنا۔ کیونکہ ان کے ذرات ہر طرف آزادانہ حرکت کرتے ہیں۔

جسمانی تبدیلیاں ساخت، شکل اور ساخت میں تبدیلی کا سبب بن سکتی ہیں لیکن کوئی نیا مواد نہیں بنتا ہے۔

• مادے کی حالتوں کی تبدیلی میں شامل عمل پگھلنا، سر بلندی، جھنا، ابلا، بخارات بننا، گاڑھا ہونا ہیں۔

گیلے کپڑے بخارات کی وجہ سے خشک ہو جاتے ہیں۔ درجہ حرارت بڑھنے کے ساتھ ہی اس کی رفتار بڑھ جاتی ہے اسی لیے گیلے کپڑے موسم سرما کی نسبت گرمیوں میں آسانی سے سوکھ جاتے۔

ہیں۔

• بخارات ٹھنڈک کے اثر کا سبب بنتے ہیں۔ بخارات کا کولنگ اثر ایئر کنڈیشنرز وغیرہ میں استعمال ہوتا ہے۔

• ارتکاز اس بات کا ایک پیمانہ ہے کہ سالوینٹس میں کتنا محلول تحلیل ہوتا ہے۔

EXERCISE QUESTIONS

MULTIPLE CHOICE QUESTIONS

Encircle the correct answer.

1. All the things are made up of

- (a) Matter
- (b) Wood
- (c) Copper
- (d) Metal

2. The substance with fixed shape and fixed volume is

- (a) steam
- (b) milk
- (c) water
- (d) ice

3. Which of the following substances has fixed volume but not fixed shape?

- (a) Steam
- (b) Wood
- (c) Water
- (d) Ice

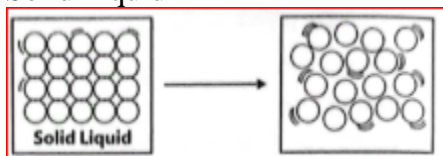
4. Which of the following has neither fixed shape nor fixed volume?

- (a) Water
- (b) Petrol
- (c) Wall
- (d) Air

5. The process shown in the diagram is

- (a) evaporation
- (b) melting
- (c) boiling
- (d) freezing

Solid Liquid



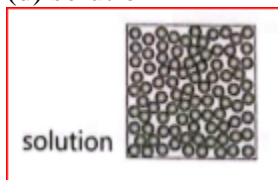
6. Which one of the following shows the force of attraction between particles from stronger to weaker?

- (a) Vapours → ice → water
- (b) Water vapours → ice
- (c) Ice water vapours
- (d) Vapours → water → ice

7. The process by which gas changes into water is called

- (a) melting
- (b) condensation
- (c) boiling
- (d) freezing

8. Concentration is a measure of how much dissolved in solvent.
 (a) solute
 (b) water
 (c) liquid
 (d) solution
9. Which of the following forms of moisture represents solid state?
 (a) Dew
 (b) Frost
 (c) Rain
 (d) Fog
10. The following figure shows the arrangement of molecules of
 (a) liquid
 (b) solid
 (c) gas
 (d) solution



Here are the correct answers:

- (a) Matter
 (d) ice
 (c) water
 (d) air
 (b) melting
 (c) Ice \rightarrow water \rightarrow vapours
 (b) condensation
 (a) solute
 (b) Frost
 (b) solid

FILL IN THE BLANKS

1. _____ has anything which has mass and occupies space.
2. _____ is the state of matter that has fixed shape and volume.
3. _____ is the reverse process of melting.
4. Melting of ice cube is a _____ change.
5. Burning of coal is a _____ change.

Here are the answers to the fill-in-the-blanks:

Matter has anything which has mass and occupies space.
 Solid is the state of matter that has fixed shape and volume.
 Freezing is the reverse process of melting.
 Melting of ice cube is a physical change.
 Burning of coal is a chemical change.

SHORT QUESTIONS

1. What is matter? Give examples.
2. What is condensation?
3. Complete the table given below.

Process	Water to ice	Ice to water
Name of process		
Requirement for process (heating/cooling)		

4. Differentiate between solute and solvent?
5. How we can increase the dissolving ability of solute? Enlist the procedures name.
6. What is dilute and concentrated solution?
7. Discuss the effects of temperature in the process of dissolving?

Here are the short answers:

1. What is matter? Give examples.

Matter is anything that has mass and occupies space. Examples: air, water, rock, a book.

2. What is condensation?

Condensation is the process where a gas (vapor) changes into a liquid.

3. Here's the completed table:

Process	Name of process	Requirement for process (heating/cooling)
Water to ice	Freezing	Cooling
Ice to water	Melting	Heating

4. Differentiate between solute and solvent?

Solute: The substance that dissolves.

Solvent: The substance in which the solute dissolves.

5. How we can increase the dissolving ability of solute? Enlist the procedures name.

Heating the solvent.

Stirring or shaking the mixture.

Reducing the solute particle size.

6. What is dilute and concentrated solution?

Dilute solution: A solution with a small amount of solute in a large amount of solvent.

Concentrated solution: A solution with a large amount of solute in a small amount of solvent.

7. Discuss the effects of temperature in the process of dissolving?

Generally, increasing temperature increases the rate and amount of solute that can dissolve in a solvent, especially for solids.

For gases, increasing temperature decreases solubility.

LONG QUESTIONS

1. What is matter discuss its states?

2. Define physical change and discuss the process of physical states of matter.

1. What is matter? Discuss its states.

Matter is anything that possesses mass and occupies space.¹ It's the substance that constitutes all physical objects.²

Matter exists in three primary states: solid, liquid, and gas.³

Solids have a definite shape and volume, with tightly packed particles.⁴ Liquids have a definite volume but take the shape of their container, with particles that can move past each other.⁵ Gases have no definite shape or volume, with particles that spread out to fill their container.

2. Define physical change and discuss the process of physical states of matter.

A physical change is a change in the form or appearance of a substance, but not its chemical composition.⁶ No new substance is created.⁷

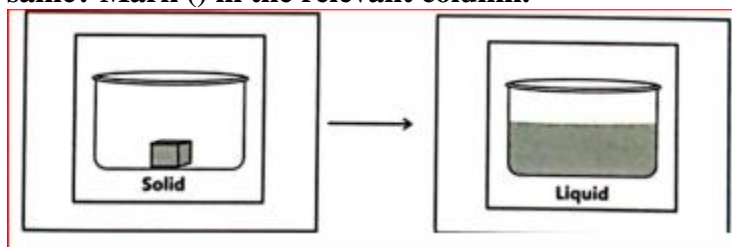
Physical state changes involve transitions between solid, liquid, and gas:⁸

Melting (solid to liquid) and freezing (liquid to solid) involve changes in particle arrangement due to heat energy.⁹

Evaporation/vaporization (liquid to gas) and condensation (gas to liquid) also involve heat energy affecting particle movement.

Sublimation (solid to gas) and deposition (gas to solid) are direct transitions between those states.¹⁰

3. Analyze when solid changes into liquid, which properties change and which stay the same? Mark () in the relevant column.



Property	Changes	Stays the same
Mass		
Volume		
Size of molecules		
Energy of molecules		
Forces between molecules		

Here's the completed table:

Property	Changes	Stays the same
Mass		✓ <input type="checkbox"/>
Volume	✓ <input type="checkbox"/> (Generally increases slightly)	
Size of molecules		✓ <input type="checkbox"/>
Energy of molecules	✓ <input type="checkbox"/>	
Forces between molecules	✓ <input type="checkbox"/>	

6. Develop some ways of accelerating the process of dissolving materials.

7. Define chemical change and describe some chemical changes in every daily life.

Absolutely, here are four to five-line answers:

6. Develop some ways of accelerating the process of dissolving materials.

Increasing the temperature of the solvent generally speeds up dissolving by increasing molecule movement.

Stirring or agitating the mixture provides kinetic energy, allowing solvent and solute to interact more frequently.

Reducing the particle size of the solute, such as crushing a solid into powder, increases its surface area.

This increased surface area allows for more contact between the solute and solvent.

Using a solvent that is more compatible with the solute will also speed up the process.

7. Define chemical change and describe some chemical changes in everyday life.

A chemical change is a process that results in the formation of new substances with different chemical properties.

Burning wood in a fireplace is a chemical change, as it produces ash, carbon dioxide, and water vapor.

Cooking food, such as baking a cake, involves chemical reactions that alter the ingredients.

Rusting of iron is a chemical change, as iron reacts with oxygen and water to form iron oxide.

Digestion of food is a chemical change, where enzymes break down complex molecules into simpler ones.

THINK OUT OF THE BOX

1. Is spoilage of food a chemical change or a physical change? Illustrate it.

2. Predict, when you shape up the block into a building form. Is it a physical change or Chemical change?

Okay, here are two-to-three-line answers:

1. Spoilage of food: chemical or physical?

Spoilage is primarily a chemical change.

It involves bacteria and fungi breaking down food molecules.

This creates new substances with different smells and tastes.

2. Shaping a block: physical or chemical?

Shaping a block is a physical change.

The material itself does not change.

Only its shape and form are altered.

3. Fill the table given below by (✓).

Materials	Physical change	Chemical change
Tearing of paper		
Boiling of an egg		
Burning of coal		
Ironing of clothes		
Rusted iron nail		

Here's the completed table:

Materials	Physical change	Chemical change
Tearing of paper	✓ <input type="checkbox"/>	
Boiling of an egg		✓ <input type="checkbox"/>
Burning of coal		✓ <input type="checkbox"/>
Ironing of clothes	✓ <input type="checkbox"/>	
Rusted iron nail		✓ <input type="checkbox"/>

4. Observe the conditions of an egg dipped in water and an egg dipped in vinegar for 12-15 days and fill the table given below.

Observation	Egg dipped in water	Egg dipped in vinegar
Size		
Shape		
Texture		
Outer condition		
Inner condition		

Here's the completed table based on the expected observations from the experiment:

Observation	Egg dipped in water	Egg dipped in vinegar
Size	No significant change	Increased slightly
Shape	No significant change	Slightly more rounded
Texture	Remains hard	Becomes softer, rubbery
Outer condition	Shell remains intact	Shell dissolves, leaving a thin membrane
Inner condition	Remains unchanged	Yolk and albumen remain contained by the membrane

WEB LINKS

states of matter

<https://www.youtube.com/watch?v=DE3LCPfP8N8>

rusting of iron

<https://www.youtube.com/watch?v=qd2B9yCKzc0>

PROJECT

Demonstrate that temperature affects the dissolving process.

Instruction:

Perform this project by taking some water and sugar crystals. Take water in a beaker and add some sugar in it. Stir it well and note that some crystals will not dissolve and some will be settled down. Now by hitting the solution, all crystals will be dissolved.

Observation:

KEY POINTS (Light and Sound)

- The Sun is the major source of light for the Earth.

Artificial sources of light means the light which we use from source which is manmade.

The objects which emit their own light are called luminous objects.

The objects which do not emit their own light are called non-luminous objects.

We can see clearly through transparent objects.

We cannot see clearly through translucent objects. Things behind translucent objects look blur.

We cannot see through opaque objects.

When a light source is away from the object, the shadow formed is smaller.

The bouncing back of light from an opaque surface is known as reflection.

Sound is a form of energy which is created by a vibrating object.

Loudness of sound is directly proportional to its intensity.

Noise not only disturbs our hearing but also other body functions like headaches and blood pressure etc.

اہم نکات

- سورج زمین کے لیے روشنی کا بڑا ذریعہ ہے۔

روشنی کے مصنوعی ذرائع سے مراد وہ روشنی ہے جسے ہم انسانی ساختہ ذریعہ سے استعمال کرتے ہیں۔

وہ اشیاء جو اپنی روشنی خود خارج کرتی ہیں ان کو نورانی اشیاء کہتے ہیں۔

وہ اشیاء جو اپنی روشنی کا اخراج نہیں کرتیں وہ غیر نورانی اشیاء کہلاتی ہیں۔

ہم شفاف اشیاء کے ذریعے واضح طور پر دیکھ سکتے ہیں۔

ہم پارہا پارہ اشیاء کے ذریعے واضح طور پر نہیں دیکھ سکتے۔ پارہا پارہ اشیاء کے پیچھے کی چیزیں دھندلی نظر آتی ہیں۔

ہم مبہم اشیاء کے ذریعے نہیں دیکھ سکتے۔

جب روشنی کا منبع آئینے سے دور ہوتا ہے تو بننے والا سایہ چھوٹا ہوتا ہے۔

مبہم سطح سے روشنی کے پیچھے اچھالنے کو انعکاس کے نام سے جانا جاتا ہے۔

آواز توانائی کی ایک شکل ہے جو کسی ہلکی ہوئی چیز سے پیدا ہوتی ہے۔

آواز کی بلندی اس کی شدت کے براہ راست متناسب ہے۔

شور نہ صرف ہماری سماعت کو متاثر کرتا ہے بلکہ جسم کے دیگر افعال جیسے سرد درد اور بلڈ پریشر وغیرہ بھی۔

EXERCISE QUESTIONS

MULTIPLE CHOICE QUESTIONS

Choose the correct answer.

1. The objects which emit their own light are called objects.
(a) luminous
(c) transparent
(b) non luminous
(d) opaque
 2. Which of the following is an example of opaque object
(a) wood, brick
(c) glass, paper
(b) moon, Earth
(d) Air, water
 3. The bouncing back of light from an opaque surface is known as
(a) shadow
(c) reflection
(b) light
(d) sound
- The speed of sound in liquid is
- (a) 340 m/sec
 - (c) 1500 m/sec
 - (b) 330 m/sec
 - (d) 5000 m/sec
5. Greater the loudness of an object greater will be it
- (a) speed
 - (c) sound
 - (b) intensity
 - (d) noise
6. Sound needs to travel in space.
- (a) mass
 - (c) volume
 - (b) weight
 - (d) medium
7. Examples of unpleasant sound are
- (a) sound of horns
 - (c) sound of music
8. Speed of sound in solids is
- (a) 6000 m/sec
 - (c) 8000 m/sec
 - (b) sound of birds
 - (d) water fall sound
 - (b) 1000 m/sec
 - (d) 5000 m/sec

9. When the light source is away from the object, the shadow formed is

- (a) closer
- (c) same
- (b) larger
- (d) smaller

10. Examples of artificial sources of light are

- (a) candle, bulb
- (b) sun, star
- (c) air, water
- (d) none of these

11. Speed of sound in air is:

- (a) 320m/sec
- (b) 0
- (c) 340m/sec
- (d) 280m/sec

Here are the correct answers:

- (a) luminous
- (a) wood, brick
- (c) reflection
- (c) 1500 m/sec
- (b) intensity
- (d) medium
- (a) sound of horns
- (d) 5000 m/sec
- (d) smaller
- (a) candle, bulb
- (c) 340m/sec

FILL IN THE BLANKS

1. Sun is the major _____ source of heat and light on earth.
2. Light travels in a _____ line.
3. Speed of sound in solids is _____.
4. Loudness of sound is directly proportion to its _____.
5. Loud and irritate sounds are known as _____.

Here are the answers to the fill-in-the-blanks:

Sun is the major natural source of heat and light on earth.

Light travels in a straight line.

Speed of sound in solids is fastest/higher.

Loudness of sound is directly proportional to its amplitude.

Loud and irritating sounds are known as noise.

SHORT QUESTIONS

1. Why sound travels faster in solids as compared to liquid and gases?
2. Why sound cannot pass through vacuum?
3. Why sound produced on Sun cannot reach on Earth?
4. What is meant by reflection of light?
5. Moon is not luminous. How do we see it?
6. Why we see our images in clear water of a lake?
7. What will be the effect on the intensity of sound when we increase the distance of listener?
Give example.

Here are the short answers:

1. **Why sound travels faster in solids as compared to liquid and gases?**
Solids have tightly packed particles, allowing sound vibrations to travel more quickly and efficiently.¹
2. **Why sound cannot pass through vacuum?**
Sound requires a medium (like air, water, or solids) to travel.² A vacuum has no medium.³
3. **Why sound produced on Sun cannot reach on Earth?**
There is a vacuum between the Sun and Earth. Sound waves cannot propagate through a vacuum.
4. **What is meant by reflection of light?**
Reflection of light is the bouncing back of light rays when they strike a surface.⁴
5. **Moon is not luminous.⁵ How do we see it?**
We see the Moon because it reflects sunlight.⁶
6. **Why we see our images in clear water of a lake?**
The smooth surface of the water acts as a mirror, causing reflection of light, which creates an image.⁷
7. **What will be the effect on the intensity of sound when we increase the distance of listener? Give example.**
The intensity of sound decreases as the distance increases.⁸
Example: A siren sounds loud nearby, but fades when we move farther away.⁹

LONG QUESTIONS

1. Differentiate between natural and artificial sources of light with example.
2. Differentiate between luminous and non-luminous object. Give examples of each.
3. Differentiate between transparent and translucent effects. Explain with examples.
4. How is shadow formed? Upon what factors shadow formed depends? Discuss its different cases.
5. Differentiate between pleasant and unpleasant sound with examples.
6. Describe an experiment to show that light travels in straight line.
7. Explain propagation of sound in different materials.
8. What are harmful effects of noise on human health. How can you reduce noise pollution?

- **Differentiate between natural and artificial sources of light with examples.**

- **Natural sources:** Light sources that occur naturally in the environment.
 - Examples: The Sun, stars, fireflies.
- **Artificial sources:** Light sources created by humans.
 - Examples: Light bulbs, candles, flashlights.

- **Differentiate between luminous and non-luminous objects. Give examples of each.**

- **Luminous objects:** Objects that emit their own light.
 - Examples: The Sun, a burning candle, a light bulb.
- **Non-luminous objects:** Objects that do not emit their own light but reflect light from other sources.
 - Examples: The Moon, a book, a table.

- **Differentiate between transparent and translucent effects. Explain with examples.**

- **Transparent:** Materials that allow light to pass through them completely, allowing clear visibility.
 - Examples: Clear glass, pure water, air.
- **Translucent:** Materials that allow some light to pass through but scatter it, making objects behind them appear blurry.
 - Examples: Frosted glass, wax paper, thin fabric.

- **How is shadow formed? Upon what factors shadow formed depends? Discuss its different cases.**

- A shadow is formed when an opaque object blocks light from a source.
- Factors affecting shadow formation:
 - **Size of the object:** Larger objects create larger shadows.
 - **Distance from the light source:** Closer light sources create larger, darker shadows.
 - **Distance from the surface:** Closer surfaces result in sharper shadows.
 - **Cases:**
 - Point source of light: Produces a sharp shadow.
 - Extended source of light: Produces a shadow with an umbra (darkest part) and penumbra (lighter part).

- **Differentiate between pleasant and unpleasant sound with examples.**

- **Pleasant sound:** Sounds that are soothing and enjoyable.
 - Examples: Music, birdsong, gentle waves.
- **Unpleasant sound:** Sounds that are irritating and disturbing.
 - Examples: Loud traffic noise, construction noise, screeching sounds.

- **Describe an experiment to show that light travels in a straight line.**

- Take three cardboard sheets with a small hole in the center of each.
- Arrange the sheets in a line so that the holes are aligned.
- Place a light source (candle or bulb) at one end.
- Observe that the light is visible through all three holes when they are aligned.
- If any of the sheets are moved out of alignment, the light is blocked. This demonstrates that light travels in a straight line.

- **Explain propagation of sound in different materials.**

- Sound travels as vibrations through a medium.
- **Solids:** Sound travels fastest due to tightly packed molecules.
- **Liquids:** Sound travels slower than in solids but faster than in gases.
- **Gases:** Sound travels slowest due to widely spaced molecules.
- Sound cannot travel through a vacuum because there is no medium to carry the vibrations.

- **What are harmful effects of noise on human health. How can you reduce noise pollution?**

- **Harmful effects:**
 - Hearing loss.
 - Stress and anxiety.
 - Sleep disturbances.
 - Increased blood pressure.

- Cardiovascular problems.
- **Reducing noise pollution:**
 - Use sound-absorbing materials in buildings.
 - Plant trees and vegetation to absorb sound.
 - Maintain vehicles to reduce noise.
 - Limit loud noises from machinery and appliances.
 - Enforce noise control regulations.
 - Use personal protective equipment (earplugs).

9. Place the object at right box. Wood, chart paper, empty plastic bottle, glass, thermocol sheet, air, saline solution, tin and net.

Transparent	Translucent	Opaque

Here's the table filled with the objects in the correct categories:

Transparent	Translucent	Opaque
Glass	Chart paper	Wood
Air	Thermocol sheet	Empty plastic bottle
Saline solution	Net	Tin

10. What will be the effect of intensity of sound when we increase the distance of listener?

As the distance between the sound source and the listener increases, the intensity of the sound decreases.¹ This is because the sound waves spread out over a larger area, resulting in less energy reaching the listener's ear.²

THINK OUT OF THE BOX

1. Enlist some animals and birds which do not have external ears but can hear normally.
2. If a person places his ear on rail road for determination of coming train, why is this done and does it work?

Let's think outside the box:

1. Animals and birds without external ears but can hear:

Snakes: They have internal ears and can detect vibrations through their jawbones.

Birds (most): While some birds have small ear openings covered by feathers, they don't have prominent external ears like mammals.

Frogs: They have tympanic membranes (eardrums) on the sides of their heads, but lack external ear structures.

Fish: They have internal ears and can detect vibrations in the water.

2. Placing ear on railroad for train detection: why and does it work?

Why: Sound travels much faster and more efficiently through solids than through air. By placing an ear on the rail, the person can detect the vibrations of an approaching train earlier than hearing it through the air.

Does it work? Yes, it does work. The vibrations from the train's wheels traveling along the rails are transmitted through the solid metal, allowing the person to hear the train's approach from a greater distance. It's an old technique used before modern warning systems were widely available.

WEB LINKS

sources of light

<https://www.youtube.com/watch?v=LCEqlvHFIhM>

Noise pollution

<https://www.youtube.com/watch?v=p7XkZleu9aY>

PROJECT

Make a 3D project to justify the statement that "light travels in a straight line" with the help of cardboard, candle and thermocol sheet.

KEY POINTS (Electricity and Magnetism)

- The study of charges at rest is called electrostatic or static electricity.

An atom is made up of many small particles but the most important are protons, electrons and neutrons.

Proton has positive charge. Electron has negative charge while neutron has no charge. Protons and neutrons are found in the central part of atom known as nucleus. Electrons revolve around the nucleus in orbits.

In an atom, number of electrons is always equal to number of protons which means negative charge is equal to positive charge. Both charges cancel each other so overall an atom is neutral. When a battery is connected to the metal wire, electrons start flowing in one direction i.e. from negative end of the battery to the positive end.

Electric current flows from positive terminal to the negative terminal of the battery.

Ammeter is used to measure electric current.

Connecting wires, bulbs, keys (switches), battery (cell) etc. are the components of an electric circuit.

Fuse is used as a safety device in electrical circuits. It blows up when an excess current flows through it thus saves our electrical appliances from any damage.

Circuit breakers serve the same purpose as the fuse.

- Like charges repel each other while opposite charges attract each other. Neutral object neither attract nor repel each other.

When a plastic comb is rubbed through dry hair, electrons move from hair to the comb. Hair gets positive charge while comb gets negative charge. Thus both bodies (hair and comb) have static charge.

A magnet can pull things only when placed in its magnetic field.

A bar magnet has two poles i.e. North (N) and South (S) poles. Magnetic field is stronger at poles than at centre of the magnet. Magnetic lines move from North to South Pole of the magnet. An electromagnet remains magnet till the current is on. As the current is switched off, it loses its magnetic properties.

Strength of an electromagnet can be increased by increasing the amount of current through the wire.

- Electromagnet attracts the objects made of iron, nickel and cobalt.

Electromagnets are used in magnetic cranes, electric bells, telephones, electric motors, loud speakers, circuit breakers, magnetic locks etc.

The Earth also acts as a bar magnet having its own magnetic field. Its field is strongest at the poles

- Magnetic compass is navigational instrument which is used for finding direction and used to locate the direction of Qibla.

اہم نکات

- آرام پر چار جز کا مطالعہ الیکٹروسٹیٹک یا الیکٹریسٹی کہلاتا ہے۔

ایک ایٹم بہت سے چھوٹے ذرات سے بنا ہوتا ہے لیکن سب سے اہم پروٹون، الیکٹران اور نیوٹران ہیں۔

پروٹون میں مثبت چارج ہوتا ہے۔ الیکٹران میں منفی چارج ہوتا ہے جبکہ نیوٹران کا کوئی چارج نہیں ہوتا۔ پروٹان اور نیوٹران ایٹم کے مرکزی حصے میں پائے جاتے ہیں جسے نیوکلئس کہا جاتا ہے۔

الیکٹران مدار میں نیوکلئس کے گرد گھومتے ہیں۔

ایٹم میں الیکٹران کی تعداد ہمیشہ پروٹون کی تعداد کے برابر ہوتی ہے جس کا مطلب ہے کہ منفی چارج مثبت چارج کے برابر ہوتا ہے۔ دونوں چار جز ایک دوسرے کو منسوخ کرتے ہیں لہذا مجموعی

طور پر ایک ایٹم غیر جانبدار ہے۔

جب بیٹری دھاتی تار سے منسلک ہوتی ہے تو الیکٹران ایک سمت میں بہنے لگتے ہیں یعنی بیٹری کے منفی سرے سے مثبت سرے تک۔

الیکٹرک کرنٹ مثبت ٹرمینل سے بیٹری کے منفی ٹرمینل کی طرف بہتا ہے۔

ایکمیٹر کا استعمال برقی رو کی پیمائش کے لیے کیا جاتا ہے۔

جڑنے والی تاریں، بلب، چابیاں (سوچ)، بیٹری (سیل) وغیرہ برقی سرکٹ کے اجزاء ہیں۔

فیوز کو برقی سرکٹس میں حفاظتی آلہ کے طور پر استعمال کیا جاتا ہے۔ یہ اس وقت اڑتا ہے جب اس میں سے زیادہ کرنٹ بہتا ہے اس طرح ہمارے برقی آلات کو کسی بھی نقصان سے بچاتا ہے۔

سرکٹ بریکر فیوز کے طور پر ایک ہی مقصد کی خدمت کرتے ہیں

جیسے چار جز ایک دوسرے کو پیچھے ہٹاتے ہیں جبکہ مخالف چار جز ایک دوسرے کو اپنی طرف متوجہ کرتے ہیں۔ غیر جانبدار شے نہ تو ایک دوسرے کو اپنی طرف متوجہ کرتی ہے اور نہ ہی پیچھے ہٹاتی ہے۔

جب پلاسٹک کی کنگھی کو خشک بالوں میں رگڑا جاتا ہے تو الیکٹران بالوں سے کنگھی میں منتقل ہوتے ہیں۔ بالوں پر مثبت چارج ہوتا ہے جبکہ کنگھی کو منفی چارج ملتا ہے۔ اس طرح دونوں جسموں (بال اور کنگھی) میں جامد چارج ہوتا ہے۔

مقناطیس چیزوں کو اسی وقت کھینچ سکتا ہے جب اس کے مقناطیسی میدان میں رکھا جائے۔

قطب۔ مقناطیسی میدان مقناطیس کے مرکز کی نسبت کھمبوں پر زیادہ مضبوط ہوتا ہے۔ مقناطیسی لکیریں مقناطیس کے (S) اور جنوبی (N) ایک بار میگنیٹ کے دو قطب ہوتے ہیں یعنی شمالی شمال سے قطب جنوبی کی طرف جاتی ہیں۔

برقی مقناطیس اس وقت تک مقناطیس رہتا ہے جب تک کرنٹ آن نہیں ہوتا۔ جیسے جیسے کرنٹ بند ہو جاتا ہے، یہ اپنی مقناطیسی خصوصیات کھودیتا ہے۔

تار کے ذریعے کرنٹ کی مقدار بڑھا کر برقی مقناطیس کی طاقت میں اضافہ کیا جاسکتا ہے۔

برقی مقناطیس لوہے، نکل اور کوبالٹ سے بنی اشیاء کو اپنی طرف متوجہ کرتا ہے۔

برقی مقناطیس مقناطیسی کرین، الیکٹرک بیل، ٹیلی فون، الیکٹرک موٹرز، لاؤڈ اسپیکر، سرکٹ بریکر، مقناطیسی تالے وغیرہ میں استعمال ہوتے ہیں۔

زمین ایک بار میگنیٹ کے طور پر بھی کام کرتی ہے جس کا اپنا مقناطیسی میدان ہوتا ہے۔ اس کا میدان کھمبوں پر سب سے مضبوط ہے۔

مقناطیسی کمپاس ایک نیوگیٹیشن آلہ ہے جو سمت معلوم کرنے کے لیے استعمال ہوتا ہے اور قبلہ کی سمت معلوم کرنے کے لیے استعمال ہوتا ہے۔

EXERCISE QUESTIONS

MULTIPLE CHOICE QUESTIONS

Encircle the correct answer.

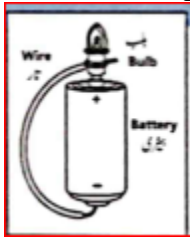
1. Electric current is flow of

- (a) charges
- (b) atoms
- (c) sound
- (d) heat

2. The diagram given below shows a bulb and a wire attached to a battery.

The bulb is lighted because the

- (a) battery is out of energy
- (b) bulb is out of energy
- (c) circuit is closed
- (d) circuit is open



3. Which of the following options is correct?

Device

Function

- (a) Battery

Prevent devices from overflow of current.

- (b) Switch

Pushes electrons in the circuit.

- (c) Fuse

Stops and starts flow of current.

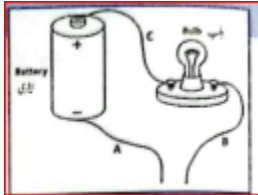
- (d) Ammeter

Measures current

	Device	Function
A	Battery	Prevent devices from overflow of current
B	Switch	Pushes electrons in the circuit
C	Fuse	Stops and starts flow of current
D	Ammeter	Measures current

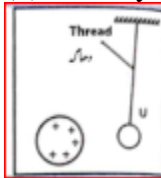
4. The diagram given below shows an open electrical circuit with a battery, bulb and three wires. Wires are labelled as A, B and C. What should be done to glow the bulb?

- (a) Remove wire C
- (b) Remove the battery
- (c) Connect wire B and C
- (d) Connect wire A and B



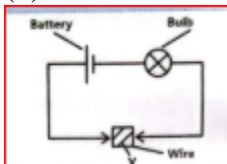
5. A positively charged ball T is brought closer to a ball U hanging with thread, ball U is attracted towards ball T. What is the charge on ball U?

- (a) Positive
- (b) Negative
- (c) Both
- (d) Not any



6. A solid Y is placed in the circuit shown in the figure, the lamp does not light up. What is solid Y?

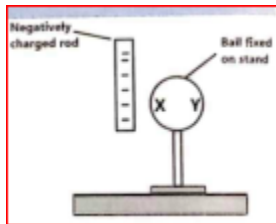
- (a) Iron
- (b) Plastic
- (c) Copper
- (d) Silver



7. A negatively charged rod is brought closer to a ball. What will be the charges on X and Y points?

- (a)
- (b)
- (c)
- (d)

X
Y



	X	Y
(a)	+	+
(b)	-	-
(c)	+	-
(d)	-	+

8. The energy needed by electrons to flow in the circuit is provided by

- (a) Battery
- (c) Fuse
- (b) Switch
- (d) Bulb

9. Choose the correct option.

- (a) North Poles attract each other.
- (b) South Poles attract each other.
- (c) North Poles attract South Poles.
- (d) North Poles repel South Poles.

10. Electromagnet works only when current

- (a) is on
- (b) is off
- (c) increases
- (d) decreases

11. Which of the following devices make use of electromagnet?

- (a) Electric bell
- (b) Tube light
- (c) Gas heater
- (d) Magnetic compass

- (a) Battery
- (b) Fuse

12. Which of the following is used to save our appliances from excessive current?

(c) Switch

(d) Bulb

13. Which is the best material for making an electromagnet?

(a) A glass rod

(b) A plastic comb

(c) An iron nail

(d) A paper cup

14. Electromagnet is not used in

(a) Electric bell

(b) Tube light

(c) Electric fan

(d) Telephone

Here are the correct answers:

(a) charges

(c) circuit is closed

(d) Ammeter, Measures current

(c) Connect wire B and C

(b) Negative

(b) Plastic

(a) X: +, Y: -

(a) Battery

(c) North Poles attract South Poles.

(a) is on

(a) Electric bell

(b) Fuse

(c) An iron nail

(b) Tube light

FILL IN THE BLANKS

1. The static electricity means charges at _____ state.

2. The flow of free electrons is called _____.

3. Our Earth acts like a _____

4. Magnetic compass is an instrument which always points in _____ direction.

5. An electromagnet remains magnet till the current is _____.

Here are the answers to the fill-in-the-blanks:

The static electricity means charges at rest state.

The flow of free electrons is called electric current.

Our Earth acts like a giant magnet.

Magnetic compass is an instrument which always points in North-South direction.

An electromagnet remains magnet till the current is flowing/on.

SHORT QUESTIONS

1. Define atom.
2. Name the particles present in an atom and what are the charges on these particles?
3. What are free electrons?
4. Define static electricity. Give an example.
5. Why we use rubber gloves for performing electric work?
6. When two clouds come close to each other lightening is seen why?
7. When you rub a comb with your hair and bring it close to paper pieces, it attracts the paper pieces. Why?
8. When we touch metal door knob we feel an electric shock. Why?
9. Why neutral object is always attracted by charged object not repelled?
10. Why does an iron pin (common pin) stuck magnet attracted another pin?
11. A balloon is charged by rubbing it with woolen cloth. What does it stuck the wall when brought near wall?
12. Suppose you are given two similar iron bars and told that one is magnet and other is non-magnet. How would you find:
 - i) Which bar is not a magnet?
 - ii) Poles of a magnet without any indication.
13. What is meant by charging an object electrically?
14. Define electromagnet. How strength of electromagnet can be increased?
15. What is fuse? How it is used?

1. Define atom.

An atom is the basic building block of all matter, consisting of a nucleus and orbiting electrons.

2. Name the particles present in an atom and what are the charges on these particles?

Protons: Positive charge.

Neutrons: Neutral (no charge).

Electrons: Negative charge.

3. What are free electrons?

Free electrons are electrons in the outer orbits of atoms that are not tightly bound to the nucleus and can move freely.

4. Define static electricity. Give an example.

Static electricity is the buildup of electric charge on the surface of an object.

Example: Rubbing a balloon on hair and it sticking to a wall.

5. Why we use rubber gloves for performing electric work?

Rubber is an insulator, so rubber gloves prevent electric current from flowing through our bodies, reducing the risk of electric shock.

6. When two clouds come close to each other lightening is seen why?

Friction between water droplets and ice particles in the clouds causes static charge buildup, which then discharges as lightning.

7. When you rub a comb with your hair and bring it close to paper pieces, it attracts the paper pieces. Why?

Rubbing transfers electrons, charging the comb. The charged comb induces an opposite charge in the paper pieces, causing attraction.

8. When we touch metal door knob we feel an electric shock. Why?

Static electricity can accumulate on our bodies. Touching a metal knob, which is a conductor, allows the charge to rapidly discharge, causing a shock.

9. Why neutral object is always attracted by charged object not repelled?

A charged object induces an opposite charge in a neutral object, leading to attraction. Repulsion requires like charges.

10. Why does an iron pin (common pin) stuck magnet attracted another pin?

The magnet induces magnetism in the first iron pin, making it a temporary magnet. The two pins then attract each other.

11. A balloon is charged by rubbing it with woolen cloth. What does it stuck the wall when brought near wall?

The charged balloon induces an opposite charge on the wall, causing electrostatic attraction.

12. Suppose you are given two similar iron bars and told that one is magnet and other is non-magnet. How would you find:

- i) **Which bar is not a magnet?** Bring one end of one bar close to the center of the other bar. If there is an attraction, the first bar is a magnet. If there is no attraction, the bar that lays in the center is the non-magnet.
- ii) **Poles of a magnet without any indication.** Hang the magnet by a string. It will align itself with the Earth's magnetic field, pointing North and South.

13. What is meant by charging an object electrically?

Charging an object electrically means adding or removing electrons from it, resulting in a net positive or negative charge.

14. Define electromagnet. How strength of electromagnet can be increased?

An electromagnet is a magnet created by passing electric current through a coil of wire wrapped around a core (usually iron).

Strength can be increased by: increasing the current, increasing the number of coils, or using a ferromagnetic core.

15. What is fuse? How it is used?

A fuse is a safety device containing a thin wire that melts and breaks the circuit when excessive current flows.

It is used to protect electrical circuits and appliances from damage caused by overcurrents.

LONG QUESTIONS

1. Write the function of electric devices given in the table below.

Electric device	Function
Battery	
Ammeter	
Fuse	

Here's the table with the functions of the electric devices:

Electric device	Function
Battery	Provides electrical energy by converting chemical energy into electrical energy.
Ammeter	Measures the electric current flowing through a circuit.
Fuse	Protects electrical circuits by melting and breaking the circuit when there is an overcurrent.

2. When a balloon is rubbed against hair, the balloon becomes negatively charged.

i) Explain how rubbing causes balloon to become negatively charged.

ii) Explain why the hair is pulled towards the balloon.

3. Describe the flow of electric current with the help of circuit diagram.

4. Discuss the types of a magnet in detail.

5. What is an electric circuit? Write name of basic components of electric circuit. Explain with the help of diagram.

a) Open Circuit

b) Closed Circuit

6. Differentiate between magnetic and non-magnetic substance.

7. What is magnet compass? What are its uses?

8. What are electromagnets? Discuss.

Here are two-to-three line answers:

2. Balloon rubbed on hair:

i) Rubbing transfers electrons from hair to the balloon, giving it a negative charge.

ii) The negatively charged balloon induces a positive charge in the hair, causing attraction.

3. Flow of electric current:

Current is the flow of electrons through a conductor.

A circuit diagram shows this flow using symbols.

It flows from the negative to the positive terminal of a battery.

4. Types of magnets:

Permanent magnets retain their magnetism.

Temporary magnets only exhibit magnetism when induced.

Electromagnets are created by electric current.

5. Electric circuit:

An electric circuit is a closed loop for current flow.

Components: battery, wires, switch, load.

a) Open: Circuit broken, no flow. b) Closed: Circuit complete, current flows.

6. Magnetic vs. non-magnetic:

Magnetic: Attracted to magnets, like iron.

Non-magnetic: Not attracted, like wood.

7. Magnetic compass:

A compass has a magnetic needle.

It aligns with Earth's magnetic field.

Used for navigation.

8. Electromagnets:

Created by electric current in a coil.

Strength varies with current and coil turns.

Used in motors and speakers.

Here are the detailed answers:

2. Balloon rubbed on hair:

i) How balloon becomes negatively charged: Rubbing the balloon against hair causes electrons to transfer from the hair to the balloon. This electron transfer is due to the triboelectric effect, where certain materials gain or lose electrons when rubbed together. Since the balloon gains electrons, it becomes negatively charged.

ii) Why hair is pulled towards balloon: The negatively charged balloon induces a positive charge in the nearby hair. This induced positive charge is due to the rearrangement of charges within the hair molecules. Opposites attract, so the positively charged hair is pulled towards the negatively charged balloon.

3. Flow of electric current with circuit diagram:

Electric current is the flow of free electrons through a conductor.

A circuit diagram uses symbols to represent components like a battery, wires, and a load (e.g., a bulb).

In a typical circuit, electrons flow from the negative terminal of the battery, through the wires and load, and back to the positive terminal.

(Imagine a simple circuit diagram with a battery, wires, and a bulb. Arrows would indicate the electron flow).

4. Types of magnets:

Permanent magnets: These retain their magnetic properties over long periods. They are made of ferromagnetic materials that have been magnetized. Examples: Alnico, neodymium magnets.

Temporary magnets: These exhibit magnetic properties only when they are within a strong magnetic field. They lose their magnetism when the field is removed. Examples: Soft iron.

Electromagnets: These are created by passing an electric current through a coil of wire wrapped around a core (often iron). Their strength can be controlled by varying the current.

5. Electric circuit:

An electric circuit is a closed loop that allows electric current to flow.

Basic components:

Battery (or power source)

Wires (conductors)

Switch (to control the flow)

Load (e.g., bulb, resistor)

a) Open Circuit: The circuit is incomplete, so no current flows. (Imagine a circuit diagram with the switch open.)

b) Closed Circuit: The circuit is complete, allowing current to flow. (Imagine a circuit diagram with the switch closed, and the light bulb lit.)

6. Magnetic vs. non-magnetic substances:

Magnetic substances: These are attracted to magnets and can be magnetized. They contain ferromagnetic materials like iron, nickel, and cobalt.

Non-magnetic substances: These are not attracted to magnets and cannot be magnetized. They include materials like wood, plastic, glass, and aluminum.

7. Magnetic compass:

A magnetic compass is a device with a freely rotating magnetic needle.

The needle aligns itself with the Earth's magnetic field, pointing towards the magnetic north and south poles.

Uses: Navigation (land, sea, air), determining direction, geological surveys.

8. Electromagnets:

Electromagnets are created by passing an electric current through a coil of wire, often wrapped around an iron core.

The magnetic field strength is directly proportional to the current and the number of turns in the coil.

They are used in various applications, including:

Electric motors and generators

Speakers and headphones

MRI machines

Magnetic levitation trains

Relays and solenoids.

THINK OUT OF THE BOX

1. In a circuit if you use plastic wire instead of copper wire, will it be able to make the bulb on?

2. Enlist some objects conductors and insulator from daily life.

3. Make a list of some magnetic and non-magnetic materials from daily life.

Let's think outside the box:

1. Plastic wire vs. copper wire:

No, the bulb will not light.

Plastic is an insulator, it doesn't allow electrons to flow.

Copper is a conductor, which allows current to flow and light the bulb.

2. Conductors and insulators from daily life:

Conductors: Metal utensils, keys, water (with ions), metal wires, foil.

Insulators: Plastic containers, rubber bands, wooden furniture, glass, dry cloth.

3. Magnetic and non-magnetic materials from daily life:

Magnetic: Iron nails, steel paper clips, refrigerator magnets, some tools.

Non-magnetic: Plastic bottles, wooden pencils, paper, glass cups, aluminum cans.

WEB LINKS

Complete and incomplete circuit

<https://www.youtube.com/watch?v=js7Q-r7G9ug>

Magnetism

<https://www.youtube.com/watch?v=DR9w4koW2EA>

PROJECT

Make an electromagnetic device with the help of 2 cells, one nail, copper wires and show its temporary property of electromagnetism by putting some metallic objects near to it.

KEY POINTS (Structure of Earth)

Earth is the only planet of solar system where all the suitable conditions for life existence are present.

Crust consists of solid matter. Its thickness is 5-70Km.

Mantle contains liquid called as lava.

Core has two parts, internal core and external core.

Water is present in solid, liquid and gas form on the earth.

Colour of soil is because of different minerals in it. There are about 170 different colours of soil e.g. black, grey, white, brown and red.

Iron gives red colour to the soil.

Texture is another important property of soil. It is based upon the size of particles of soil. Soils contain both small and large particles.

The soil which has equal amount of large and small particles is ideal for plants growth.

Plants grow in different soils. Some grow in sandy soil while others in loam which is a mixture of sand and clay.

Soils are of three types i.e. sand, silt and clay.

Sand has the least capacity to hold water and is usually dry.

Silt has medium water holding capacity.

Clay has the maximum of water holding capacity.

The soil with medium moisture is ideal for plants growth.

Some animals like earthworm, termites, etc. mix with the soil and make passages in it making the soil airy. Some fungi and bacteria make friendly relation with the roots of plants and help them in their growth.

اہم نکات

زمین نظام شمسی کا واحد سیارہ ہے جہاں زندگی کے وجود کے لیے تمام موزوں حالات موجود ہیں۔

کرسٹ ٹھوس مادے پر مشتمل ہوتا ہے۔ اس کی موٹائی 5-70 کلومیٹر ہے۔

مینٹل میں مائع ہوتا ہے جسے لاوا کہتے ہیں۔

کور کے دو حصے ہوتے ہیں، اندرونی کور اور بیرونی کور۔

پانی زمین پر ٹھوس، مائع اور گیس کی شکل میں موجود ہے۔

مٹی کا رنگ اس میں موجود مختلف معدنیات کی وجہ سے ہے۔ مٹی کے تقریباً 170 مختلف رنگ ہیں جیسے سیاہ، سرمئی، سفید، بھورا اور سرخ۔

لوہا مٹی کو سرخ رنگ دیتا ہے۔

ساخت مٹی کی ایک اور اہم خاصیت ہے۔ یہ مٹی کے ذرات کے سائز پر مبنی ہے۔ مٹی میں چھوٹے اور بڑے دونوں ذرات ہوتے ہیں۔

جس مٹی میں بڑے اور چھوٹے ذرات برابر ہوں وہ پودوں کی نشوونما کے لیے بہترین ہے۔

پودے مختلف مٹیوں میں اگتے ہیں۔ کچھ ریتیلی مٹی میں اگتے ہیں جبکہ کچھ لوم میں اگتے ہیں جو ریت اور مٹی کا مرکب ہے۔

مٹی تین قسم کی ہوتی ہے یعنی ریت، گاد اور مٹی۔

ریت میں پانی رکھنے کی کم سے کم صلاحیت ہوتی ہے اور وہ عام طور پر خشک ہوتی ہے۔

سٹ میں پانی کو روکنے کی درمیانی صلاحیت ہوتی ہے۔

مٹی میں زیادہ سے زیادہ پانی رکھنے کی صلاحیت ہوتی ہے۔

درمیانی نمی والی مٹی پودوں کی نشوونما کے لیے بہترین ہے۔

کچھ جانور جیسے کیچڑ، دیگ وغیرہ مٹی میں گھل مل کر اس میں راستے بنا کر مٹی کو ہوا دار بنا دیتے ہیں۔ کچھ فنگس اور بیکٹیریا پودوں کی جڑوں کے ساتھ دوستانہ تعلق بناتے ہیں اور ان کی نشوونما میں مدد کرتے ہیں۔

EXERCISE QUESTIONS

MULTIPLE CHOICE QUESTIONS

Encircle the correct answer.

1. is the only planet of solar system where life exists.

- (a) Earth
- (b) Sun
- (c) Moon
- (d) Mars

2. How many layers earth has?

- (a) 2
- (b) 3
- (c) 4
- (d) 5

3. The outer layer of earth is known as

- (a) Core
- (b) Crust
- (c) Mantle
- (d) Soil

4. second layer of earth contains liquid like magma.

- (a) Core
- (b) Crust
- (c) Mantle
- (d) Soil

5. supports the growth of crops and plants.

- (a) Soil
- (b) Virus
- (c) Fungi
- (d) Algae

6. Basic types of soil on the basis of size of particles are

- (a) 1
- (b) 2
- (c) 3
- (d) 4

7. The basic structure of clay is

- (a) large particles and large air spaces
- (b) medium particles and medium air spaces
- (c) largest particles and largest air spaces
- (d) small particles and small air spaces

8. The soil which consists of medium size particles is

- (a) sand
- (b) silt
- (c) clay
- (d) loam

9. The soil which contains both small and medium sized particles is

- (a) sand
- (b) clay
- (c) silt
- (d) loam

10. Characteristic of soil identified through size of its particles is

- (a) structure
- (b) texture
- (c) colour
- (d) components

11. The type of soil in which water moves faster is

- (a) sand
- (b) clay
- (c) silt
- (d) loam

12. Plants grow well in the soil with

- (a) maximum moisture
- (b) without moisture
- (c) medium moisture
- (d) least moisture

13. The organisms which decompose dead bodies are

- (a) bacteria
- (b) algae
- (c) virus
- (d) insects

Here are the correct answers:

- (a) Earth
- (b) 3
- (b) Crust
- (c) Mantle
- (a) Soil
- (c) 3
- (d) small particles and small air spaces
- (b) silt
- (d) loam
- (b) texture
- (a) sand
- (c) medium moisture
- (a) bacteria

FILL IN THE BLANKS

1. _____ is the only planet which provides suitable conditions for life.
2. There are _____ layers of Earth.
3. _____ of the earth surface is covered water.
4. Bricks and pottery are made from _____.
5. _____ type of soil contains humans, clay and sand.

Here are the answers to the fill-in-the-blanks:

Earth is the only planet which provides suitable conditions for life.

There are three layers of Earth.

71% of the Earth's surface is covered by water.

Bricks and pottery are made from clay.

Loam type of soil contains humus, clay, and sand.

SHORT QUESTIONS

1. How many parts of core the earth has?
2. What are the sources of water?
3. What is water cycle?
4. What is soil?
5. Give functions of soil.
6. Name types of soils.
7. Name four components of soil.
8. Define soil texture.

Here are the short answers:

1. How many parts of core the earth has?

The Earth's core has two parts: the solid inner core and the liquid outer core.

2. What are the sources of water?

Rain, rivers, lakes, oceans, groundwater, and glaciers.

3. What is water cycle?

The water cycle is the continuous movement of water between the Earth's surface and the atmosphere through evaporation, condensation, and precipitation.

4. What is soil?

Soil is the loose upper layer of the Earth's surface that supports plant growth.

5. Give functions of soil.

Supports plant growth, provides nutrients, holds water, filters water, and provides habitat for organisms.

6. Name types of soils.

Sandy soil, clay soil, loam soil, and silt soil.

7. Name four components of soil.

Minerals, organic matter (humus), water, and air.

8. Define soil texture.

Soil texture refers to the relative proportions of sand, silt, and clay particles in a soil sample.

LONG QUESTIONS

1. Write a note on structure of Earth.
2. Describe the process of soil formation.
3. Compare the characteristics of three types of soils.

Here are four three-line answers:

1. Write a note on structure of Earth.

The Earth consists of three main layers: the crust, mantle, and core.¹

The crust is the solid, outermost layer, divided into oceanic and continental crust.²

The mantle is a semi-solid layer beneath the crust, and the core consists of a solid inner core and a liquid outer core.

2. Describe the process of soil formation.

Soil formation begins with the weathering of rocks, breaking them into smaller particles.³

Organic matter, such as decaying plants and animals, mixes with these particles.⁴

Water and air fill the spaces between the particles, creating a suitable environment for organisms.⁵

3. Compare the characteristics of three types of soils.

Sandy soil: Large particles, drains water quickly, poor nutrient retention.⁶

Clay soil: Small particles, retains water, poor drainage, rich in nutrients.⁷

Loam soil: Balanced mixture of sand, silt, and clay, good drainage and nutrient retention.⁸

THINK OUT OF THE BOX

1. How much emitted CO₂ can be absorbed by the soil?
2. Soil is going to be polluted and has become less fertile. Discuss the main causes of soil pollution.
3. How many types of bacteria are present in one gram of soil?
4. How organisms are beneficial for the soil?
5. How soil is beneficial for living organisms?

Let's think outside the box:

1. How much emitted CO₂ can be absorbed by the soil?

Soil absorbs CO₂ through a process called soil carbon sequestration.

The amount depends on factors like soil type, organic matter content, and vegetation.

Healthy soils with high organic matter can sequester significant amounts of CO₂, but it's not a solution to all emissions.

2. Causes of soil pollution and reduced fertility:

- Industrial waste: Heavy metals and chemicals contaminate the soil.
- Agricultural practices: Excessive use of pesticides and fertilizers.

Improper waste disposal: Dumping of non-biodegradable waste and sewage.

Deforestation: Reduces organic matter and increases erosion.

3. Types of bacteria in one gram of soil?

One gram of soil can contain billions of bacteria, representing thousands of different species.

The exact number and types vary greatly based on soil conditions.

4. How organisms are beneficial for the soil?

Earthworms: Aerate soil and improve drainage.

Bacteria and fungi: Decompose organic matter, releasing nutrients.

Microorganisms: Fix nitrogen, making it available for plants.

Insects: Help break down organic matter and create tunnels.

5. How soil is beneficial for living organisms?

Plant growth: Provides nutrients, water, and support.

Habitat: Provides shelter for many organisms.

Water filtration: Filters and purifies water.

Nutrient cycling: Plays a vital role in nutrient cycles.

Foundation: Provides a base for human structures.

WEB LINKS

Structure of earth

<https://www.youtube.com/watch?v=eXiVGEEPQ6C>

Types of soil

<https://www.youtube.com/watch?v=7h6psLfYA7w>

PROJECT

Make a model of water cycle with the help of plaster of paris to make mountains, white color cotton to make clouds, real soil, grass and water.

Instructions:

1. Cut a piece of plastic ball and wrap a yellow chart paper on it to make a sun and fomic sheets to show it rays.
2. Cut thermocol sheet in the shape of clouds and wrap them with white cotton.
3. Paste sun and cloud on yellow chart paper.
4. Cut the thermocol sheet in the form of mountains and wrap them with brown colour glaze paper.
5. Now take chart paper of blue colour to show sea.
6. Now adjust all the materials to show the model of water cycle with proper labeling.

KEY POINTS (Space and Satellites)

- Our Sun is a star and has central position in the solar system. Our Earth is among the eight planets revolving around the Sun.
- A satellite is an object that orbits the planets. Natural satellites are also called moons.
- The first artificial satellite was Sputnik-I. It was launched by Russia on 4th October, 1957 by the Soviet Union.
- Man-made devices that orbit the Earth are known as artificial satellites.
- Geostationary satellites are the ones that revolve with the speed of earth around the earth.
- The process to know about the location at a place is Global Positioning system.

اہم نکات

- ہمارا سورج ایک ستارہ ہے اور نظام شمسی میں مرکزی حیثیت رکھتا ہے۔ ہماری زمین سورج کے گرد گھومنے والے آٹھ سیاروں میں شامل ہے۔
- سیٹلائٹ ایک ایسی چیز ہے جو سیاروں کے گرد چکر لگاتی ہے۔ قدرتی سیٹلائٹس کو چاند بھی کہا جاتا ہے۔
- تھا۔ اسے روس نے 4 اکتوبر 1957 کو سوویت یونین نے شروع کیا تھا۔ I- پہلا مصنوعی سیٹلائٹ سپوٹنک
- انسان کے بنائے ہوئے آلات جو زمین کے گرد چکر لگاتے ہیں مصنوعی سیارچے کے نام سے جانے جاتے ہیں۔
- جیو سٹیشنری سیٹلائٹس وہ ہیں جو زمین کے گرد زمین کی رفتار کے ساتھ گھومتے ہیں۔
- کسی جگہ کے مقام کے بارے میں جاننے کا عمل گلوبل پوزیشننگ سسٹم ہے۔

EXERCISE QUESTIONS

MULTIPLE CHOICE QUESTIONS

Encircle the Correct answer.

1. There are countless lightening objects in the sky, but actually they all are not
 - (a) Stars
 - (b) Moons
 - (c) Planets
 - (d) Asteroids
2. Sputnik 1 was launched by
 - (a) Italy
 - (b) Japan
 - (c) Soviet Union
 - (d) Canada
3. On man stepped on the moon.
 - (a) July 15, 1969
 - (b) July 20, 1969
 - (c) July 25, 1969
 - (d) July 30, 1969
4. Man-made satellites are called satellites.
 - (a) Natural
 - (b) Artificial
 - (c) Permanent
 - (d) Dangerous

5. Geo stationary satellites move at the height of

- (a) 3600km
- (b) 3700km
- (c) 3800km
- (d) 3900km

6. is the system that locate on object on the earth.

- (a) GMS
- (b) GSM
- (c) GPS
- (d) PGS

Here are the correct answers:

- (a) Stars
- (c) Soviet Union
- (b) July 20, 1969
- (b) Artificial
- (a) 36000km (Note: The options provided were all off by a factor of 10, the correct answer is 36,000 km)
- (c) GPS

FILL IN THE BLANKS

1. Travel has become easy into space after the invention of _____.
2. _____ is the natural satellite of earth.
3. Many space crafts have been sent to the other planets of our _____ system.
4. Scientists perform their research work in _____.
5. GPS locates the exact _____ of a person.

Here are the answers to the fill-in-the-blanks:

Travel has become easy into space after the invention of rockets.

Moon is the natural satellite of Earth.

Many spacecraft have been sent to the other planets of our solar system.

Scientists perform their research work in space stations/laboratories.

GPS locates the exact location/position of a person.

SHORT QUESTIONS

1. What are satellites?
2. Name the countries which participated to make a space station in space.
3. How many Moons Saturn have?
4. What is the purpose of Geostationary Satellite?
5. Which types of satellites are used for weather information?

Here are the short answers:

1. What are satellites?

Satellites are objects that orbit a larger object, such as a planet.¹

2. Name the countries which participated to make a space station in space.

The United States, Russia, Canada, Japan, and the European Space Agency (ESA) countries.²

3. How many Moons Saturn have?

Saturn has many moons, over 80 confirmed, with the number continually being updated as new ones are discovered.

4. What is the purpose of Geostationary Satellite?

Geostationary satellites remain in a fixed position relative to a point on Earth, used for communication and broadcasting.

5. Which types of satellites are used for weather information?

Meteorological satellites.³

LONG QUESTIONS

1. What are artificial satellites? Describe some use of various satellites.
2. What do you know about GPS?

Here are the answers:

1. What are artificial satellites? Describe some uses of various satellites.

Artificial satellites are man-made objects launched into orbit around Earth or other celestial bodies.¹

Uses:

Communication satellites: Relay signals for television, telephone, and internet.²

Navigation satellites (GPS): Provide precise location and time information.³

Weather satellites: Monitor weather patterns and provide data for forecasting.⁴

Earth observation satellites: Capture images and data for environmental monitoring, land use, and resource management.⁵

Scientific satellites: Conduct research in astronomy, physics, and other fields.⁶

2. What do you know about GPS?

GPS (Global Positioning System) is a satellite-based navigation system.⁷

It uses a network of satellites to determine the precise location and time of a receiver on Earth.⁸

It works by measuring the time it takes for signals to travel from multiple satellites to the receiver.

It is used for navigation in cars, planes, and ships, as well as for surveying, mapping, and other applications.⁹

THINK OUT OF THE BOX

1. Is it easy to breathe in the space?
2. Can astronauts easily communicate with each other in space?
3. Astronauts live in space for few days, weeks and even years. Where do the astronauts stay in space?

Let's think outside the box:

1. Is it easy to breathe in space?

No, it is not easy to breathe in space.

Space is a vacuum, meaning it has no air.

Astronauts must wear spacesuits that provide oxygen to breathe.

2. Can astronauts easily communicate with each other in space?

Not without technology.

In space, sound cannot travel because there's no air.

Astronauts communicate using radio waves and special equipment in their spacesuits or spacecraft.

3. Where do astronauts stay in space?

Astronauts stay in space stations, like the International Space Station (ISS).

Space stations provide a habitable environment with air, water, and living quarters.

They also conduct experiments and research in these stations.

PROJECT :Make a project of Space Station with the help of your teacher.

KEY POINTS (Technology in Everyday Life)

- Wear apron during working in laboratory.

Model making has always been important in sciences and arts.

- Spirit level is an instrument used to indicate whether a surface is horizontal or not. It is used by mostly carpenters, masons, frame makers, electricians, plumbers and some other workers.

This is used as a vertical reference line called as plumb line.

- Wire cutter and stripper is an instrument which is used to cut and peel of the wire.

Manual Hand Drill is a device which is used to make holes in the wood or any hard surface.

Hacksaw is an instrument to cut PVC pipe.

First aid is temporary care that we give to person in case of sudden injury or illness.

Thermometer is end to measure the temperature of a body.

During earthquake we have to do that actions mentioned below in order to save ourself.

- On hearing fire alarm, you should stop what you are doing.

Do not enter into flood water.

- Hospital is a place where a person is treated properly.

اہم نکات

- لیبارٹری میں کام کے دوران تہبند پہنیں۔

ماڈل سازی ہمیشہ سے علوم و فنون میں اہم رہی ہے۔

- اسپرٹ لیول ایک ایسا آلہ ہے جو اس بات کی نشاندہی کرنے کے لیے استعمال ہوتا ہے کہ آیا کوئی سطح افقی ہے یا نہیں۔ یہ زیادہ تر بڑھتی، معمار، فریم بنانے والے، الیکٹریشن، پلمبر اور کچھ دوسرے کارکن استعمال کرتے ہیں۔

یہ عمودی حوالہ لائن کے طور پر استعمال ہوتا ہے جسے پلمب لائن کہا جاتا ہے۔

- وائر کٹر اور اسٹریپر ایک ایسا آلہ ہے جو تار کو کاٹنے اور چھیلنے کے لیے استعمال کیا جاتا ہے۔

دستی ہینڈ ڈرل ایک ایسا آلہ ہے جو کلکڑی یا کسی سخت سطح میں سوراخ کرنے کے لیے استعمال ہوتا ہے۔

ہیکسا پوئی پائپ کاٹنے کا ایک آلہ ہے۔

ابتدائی طبی امداد عارضی دیکھ بھال ہے جو ہم کسی شخص کو اچانک چوٹ یا بیماری کی صورت میں دیتے ہیں۔

جسم کے درجہ حرارت کی پیمائش کرنے کے لیے تھرمامیٹر کا اختتام ہوتا ہے۔

زلزلے کے دوران ہمیں اپنے آپ کو بچانے کے لیے ذیل میں بیان کیے گئے اعمال کرنے پڑتے ہیں۔

- فائر الارم سننے پر، آپ جو کچھ کر رہے ہیں اسے روک دینا چاہیے۔

سیلابی پانی میں داخل نہ ہوں۔

- ہسپتال ایک ایسی جگہ ہے جہاں کسی شخص کا مناسب علاج کیا جاتا ہے۔

EXERCISE QUESTIONS

MULTIPLE CHOICE QUESTIONS

Encircle the correct answer.

1. Wear during working in laboratory.

- (a) Apron
- (b) Sun glasses
- (c) Nylon clothes
- (d) Polyester clothes

2. The chemicals are kept in

- (a) Aluminum cans
- (b) Plastic bottles
- (c) Reagent bottles
- (d) Glass bottles

3. is put in spirit level.

- (a) Milk
- (b) Oil
- (c) Water
- (d) Ethanol

4. In spirit level

liquid is used.

- (a) coloured
- (b) transparent
- (c) oily
- (d)

5. is a place where a person is treated properly.

- (a) College
- (b) Hospital
- (c) School
- (d) Office

6. carries the injured patients to the hospital having first aid equipments.

- (a) Cycle
- (c) Ambulance
- (b) Truck
- (d) Car

7. We put the spirit level in a direction.

- (a) Horizontal
- (b) Vertical
- (c) Tilted
- (d) Between Horizontal and Vertical

8. LEDs stand for

- (a) Light Emitting Diodes
- (b) Light Entering Diodes
- (c) Light Emitting Doors
- (d) Lamp Emitting Diodes

9. First Aid is that is given to an ill person.

- (a) Temporary

- (b) Final
 - (c) Permanent
 - (d) Dangerous
10. can stop heavy bleeding and prevent from infections.
- (a) Tablet
 - (b) Dressing a wound
 - (c) Apron
 - (d) Cotton

Here are the correct answers:

- (a) Apron
- (c) Reagent bottles (or d) Glass bottles, but reagent bottles are more specific)
- (d) Ethanol
- (b) transparent
- (b) Hospital
- (c) Ambulance
- (a) Horizontal (and/or b) Vertical, depending on the type of leveling being done)
- (a) Light Emitting Diodes
- (a) Temporary
- (b) Dressing a wound

FILL IN THE BLANKS

1. _____ is an instrument used to indicate whether a surface is horizontal or not.
2. Manual hand drill is a device which is used to make _____ in the wood.
3. Hacksaw is an instrument which is used to _____ PVC Pipe.
4. _____ is a temporary care that we give to an injured person.
5. On hearing of fire alarm, we should _____ what we are doing.

Here are the answers to the fill-in-the-blanks:

Level is an instrument used to indicate whether a surface is horizontal or not.
 Manual hand drill is a device which is used to make holes in the wood.
 Hacksaw is an instrument which is used to cut PVC pipe.
 First aid is a temporary care that we give to an injured person.
 On hearing of fire alarm, we should stop what we are doing.

SHORT QUESTIONS

1. What is spirit level?
2. What is Plumb Line?
3. Name the persons who take help from spirit level?
4. What do you know about sundial?
5. Write use of electronic balance and beaker?
6. Which gas is used in fire extinguisher?
7. What are LEDs?
8. Differentiate between analog and digital thermometer?

Here are the short answers:

1. What is a spirit level?

A spirit level is a tool used to determine if a surface is horizontal or vertical, using a bubble in a liquid-filled tube.¹

2. What is a Plumb Line?

A plumb line is a weight suspended from a string, used to determine a vertical line.²

3. Name the persons who take help from spirit level?

Carpenters, masons, builders, and surveyors.³

4. What do you know about sundial?

A sundial is a device that uses the position of the sun to tell time.⁴

5. Write use of electronic balance and beaker?

Electronic balance: Measures mass accurately.

Beaker: Holds and measures liquids.⁵

6. Which gas is used in fire extinguisher?

Carbon dioxide (CO₂).⁶

7. What are LEDs?

LEDs (Light Emitting Diodes) are semiconductor light sources.⁷

8. Differentiate between analog and digital thermometer?

Analog thermometer: Uses a liquid (mercury or alcohol) to indicate temperature.⁸

Digital thermometer: Uses electronic sensors to measure and display temperature.⁹

LONG QUESTIONS

1. Discuss few steps which we should keep in mind while working in laboratory?
2. What steps are involved to shift a person to hospital?
3. What is first aid? Discuss few steps while dressing a wound?
4. Which emergency procedures we should follow during fire drill and flood drill?

Here are four-line answers:

1. Working in a laboratory:

Always wear safety gear: goggles, coat, and gloves.
Follow instructions precisely, read and understand procedures.
Handle chemicals with care, never taste or smell them directly.
Know the location of safety equipment like fire extinguishers.

2. Shifting a person to hospital:

First, assess the situation and provide immediate first aid.
Call emergency services promptly, giving details of the situation.
Keep the person calm, comfortable, and monitor their vital signs.
Prepare for transport, gather medical information, and follow emergency personnel's instructions.

3. First aid and dressing a wound:

First aid is immediate care before professional help arrives.
Wash hands, clean the wound with water, and apply antiseptic.
Cover the wound with sterile dressing and secure it.
Change dressing regularly and seek medical attention for severe wounds.

4. Emergency procedures during drills:

Fire drill: Stay calm, evacuate quickly via designated routes, assemble at the designated area, and do not re-enter.
Flood drill: Move to higher ground, stay informed via broadcasts, avoid floodwaters, and follow evacuation orders.

THINK OUT OF THE BOX

If you are having three green colour LEDs, three yellow colour LEDs and three red colour LEDs, battery and peeled off copper wire with wire stripper. Arrange all the component in a circuit form. Will all LEDs be on or not?

Let's think this through:

- LEDs in a series circuit: If you connect all nine LEDs (green, yellow, and red) in a single series circuit with the battery and wire, the outcome depends on the voltage of the battery and the voltage requirements of each LED.
- Voltage drop: Each LED has a forward voltage drop (the voltage required to make it light up). Green and blue LEDs generally require a higher voltage than yellow and red LEDs.

- Battery voltage: If the battery voltage is insufficient to overcome the combined voltage drop of all nine LEDs, none of them will light up.
- Mixed voltage requirements: Because you have a mix of LED colors, those will all have slightly different voltage requirements. This means that if there is just barely enough voltage, it is possible that the red and yellow may light, while the green do not.
- Parallel Circuit: If you created parallel circuits with the LEDs, then they would all light up, provided the battery had enough current.

Conclusion:

- If the LEDs are in a series circuit, it is highly unlikely they will all light up, due to the voltage requirements.
- If the LEDs are arranged in parallel circuits, they will most likely all light up.

PROJECT

Make a simple vacuum cleaner by using plastic bottle, suction pipe, switch 12 volt DC toy motor, 9 V battery, ice cream stick to make fan. Make it with the help of your teachers or parents. By taking help from this web

Link: [youtube.com/watch?v=cr2RObmjmEY](https://www.youtube.com/watch?v=cr2RObmjmEY)

GLOSSARY

Absorptive mode of nutrition:

A heterotrophic mode of nutrition in which fungi secrete digestive enzymes on bodies of organisms. These enzymes transfer complex food molecules into smaller absorbable molecules which are readily absorbed by organisms.

Air pollution:

Addition of unwanted and harmful materials in the air causes air pollution.

Antibiotics:

Antibiotics are the drugs used to treat bacterial infections. For example; Penicillin.

Artificial Satellites:

The man-made devices that orbit the Earth.

Atom:

All the material objects are made up of extremely small particles called atoms.

Autotrophs:

Organisms which can make their own food. For example; some bacteria and green plants.

Battery:

A device which provides energy for electrons to flow in the circuit.

Biodegradable:

These are the materials which can be decomposed into simpler substances by natural process and mix in the soil for reuse by plants and animals. For example; paper, clothes, animal dung etc.

Boiling:

The change of a liquid into its gaseous form at a specific temperature.

Bulb:

Bulb transfers electric energy into light and heat. It is used to detect flow of current in the circuit.

Classification:

Division of living organisms into groups on the basis of similarities and differences.

Closed Circuit:

When the key is closed, the circuit is complete and the bulb will glow.

Cold blooded Animals:

Animals that cannot regulate their internal body temperature with the change in the environment. For examples; reptiles, fish, amphibians etc.

Condensation:

The change of a gas (vapours) into its liquid form.

Connecting wires:

Connecting wires provide a path for electric current to flow in a circuit and connect the different parts of a circuit.

Core:

Core is the internal hottest part of the Earth.

Cotyledons:

It is the part of embryo which contains stored food.

Crust:

Crust is the outer layer of the Earth.

Decomposers:

The heterotrophs which get their food from dead organic bodies. For example; bacteria and fungi.

:Absorptive mode of nutrition

Absorptive mode of nutrition: ایک ہیٹروٹروفک طریقہ غذائیت جس میں فٹنس جانداروں کے جسموں پر ہاضمہ انزائمز خارج کرتے ہیں۔

These enzymes transfer complex food molecules into smaller absorbable molecules which are readily absorbed by organisms. یہ انزائمز پیچیدہ غذائی مالیکیولز کو چھوٹے جذب ہونے والے مالیکیولز میں منتقل کرتے ہیں جو آسانی سے جانداروں کے ذریعے جذب ہو جاتے ہیں۔

:Air pollution

Air pollution: ہوا میں ناپسندیدہ اور نقصان دہ مادوں کے اضافے سے فضائی آلودگی ہوتی ہے۔

.Addition of unwanted and harmful materials in the air causes air pollution

:Antibiotics

Antibiotics: اینٹی بائیوٹکس وہ ادویات ہیں جو بیکٹیریل انفیکشن کے علاج کے لیے استعمال ہوتی ہیں۔

.Antibiotics are the drugs used to treat bacterial infections

For example; Penicillin. مثال کے طور پر؛ پینسلین۔

:Artificial Satellites

Artificial Satellites: انسان کے بنائے ہوئے آلات جو زمین کے مدار میں گھومتے ہیں۔

.The man-made devices that orbit the Earth

:Atom

Atom: تمام مادی اشیاء انتہائی چھوٹے ذرات سے بنی ہیں جنہیں ایٹم کہتے ہیں۔

.All the material objects are made up of extremely small particles called atoms

:Autotrophs

Autotrophs: وہ جاندار جو اپنی خوراک خود بنا سکتے ہیں۔

.Organisms which can make their own food

For example; some bacteria and green plants. مثال کے طور پر؛ کچھ بیکٹیریا اور سبز پودے۔

:Battery

Battery: ایک آلہ جو سرکٹ میں الیکٹرانوں کے بہاؤ کے لیے توانائی فراہم کرتا ہے۔

.A device which provides energy for electrons to flow in the circuit

:Biodegradable

Biodegradable: یہ وہ مواد ہیں جنہیں قدرتی عمل سے سادہ مادوں میں تبدیل کیا جاسکتا ہے اور پودوں اور جانوروں کے دوبارہ استعمال کے لیے مٹی میں ملایا جاسکتا ہے۔

These are the materials which can be decomposed into simpler substances by natural process and mix in the soil .for reuse by plants and animals

For example; paper, clothes, animal dung etc. مثال کے طور پر: کاغذ، کپڑے، جانوروں کا گوبر وغیرہ۔

:Boiling

Boiling: ایک مخصوص درجہ حرارت پر مائع کا گیس کی شکل میں تبدیل ہونا۔

The change of a liquid into its gaseous form at a specific temperature

:Bulb

Bulb: بلب برقی توانائی کو روشنی اور حرارت میں منتقل کرتا ہے۔

Bulb transfers electric energy into light and heat

It is used to detect flow of current in the circuit. یہ سرکٹ میں کرنٹ کے بہاؤ کا پتہ لگانے کے لیے استعمال ہوتا ہے۔

:Classification

Classification: مماثلتوں اور اختلافات کی بنیاد پر جانداروں کو گروہوں میں تقسیم کرنا۔

Division of living organisms into groups on the basis of similarities and differences

:Closed Circuit

Closed Circuit: جب کلید بند ہوتی ہے، تو سرکٹ مکمل ہو جاتا ہے اور بلب روشن ہو جائے گا۔

When the key is closed, the circuit is complete and the bulb will glow

:Cold blooded Animals

Cold blooded Animals: وہ جانور جو ماحول میں تبدیلی کے ساتھ اپنے اندرونی جسمانی درجہ حرارت کو منظم نہیں کر سکتے۔

Animals that cannot regulate their internal body temperature with the change in the environment

For examples; reptiles, fish, amphibians etc. مثال کے طور پر: رینگنے والے جانور، مچھلی، امفیبینز وغیرہ۔

:Condensation

Condensation: گیس (بخارات) کا مائع شکل میں تبدیل ہونا۔

.The change of a gas (vapours) into its liquid form

:Connecting wires

Connecting wires: کنیکٹنگ وائرز سرکٹ میں برقی کرنٹ کے بہاؤ کے لیے راستہ فراہم کرتی ہیں اور سرکٹ کے مختلف حصوں کو جوڑتی ہیں۔

.Connecting wires provide a path for electric current to flow in a circuit and connect the different parts of a circuit

:Core

Core: کور زمین کا اندرونی گرم ترین حصہ ہے۔

.Core is the internal hottest part of the Earth

:Cotyledons

Cotyledons: یہ جنین کا وہ حصہ ہے جس میں ذخیرہ شدہ خوراک ہوتی ہے۔

.It is the part of embryo which contains stored food

:Crust

Crust: کرسٹ زمین کی بیرونی تہہ ہے۔

.Crust is the outer layer of the Earth

:Decomposers

Decomposers: وہ ہیٹروٹروف جو مردہ نامیاتی جسموں سے اپنی خوراک حاصل کرتے ہیں۔

.The heterotrophs which get their food from dead organic bodies

For example; bacteria and fungi. مثال کے طور پر؛ بیکٹیریا اور فنگس۔

Decomposition:

The microorganisms which break down complex substances into simpler one are called decomposers while the phenomenon is called decomposition.

Dicots:

Plants with two cotyledons.

Echo:

Echo is a reflection of sound waves.

Electric Circuit:

The path along which electric current flows.

Electric Current:

The flow of electric charges (free electrons).

Electromagnet:

If you wrap a wire around an iron bar and run electric current through the wire, iron bar becomes a magnet. Such a magnet is called an electromagnet.

Embryo:

Inside the seed, there is a tiny plant called embryo.

Endosperm:

It is a food reserve tissue inside the seeds of most flowering plants. It surrounds the embryo and provides nutrition in the form of starch. It may also contain oils and protein.

Endospermic Seed:

Those seeds that have an endosperm in the mature seed. It is fleshy, oily, surrounded the embryo. For example monocot plants.

Eukaryotes:

Organisms with nucleus are called eukaryotes e.g. Protista, Fungi, Animalia and Plantae.

Evaporation:

The change of a liquid into its vapours at any temperature, without boiling.

First Aid:

First aid is a temporary treatment given to an injured person.

Free Electrons:

In metals like iron, copper, aluminium and silver etc. electrons in outer most orbits are not tightly bound with the nucleus. They detach from the parent atom and move freely in empty spaces between the atoms.

Freezing:

Change of a liquid into its solid state.

Fuse:

A thin metal wire which allows a specific amount of current to flow through it. It saves electrical appliances from overflow of current.

Genetic Variation:

It is the difference in DNA among individuals or the differences between populations.

Global Warming:

When the fossil fuels and other harmful materials are burned, carbon dioxide and many other greenhouse gases are released that results in increased temperature of Earth.

:Decomposition

:Decomposition: وہ مائیکرو آرگنائزم جو پیچیدہ مادوں کو سادہ مادوں میں توڑتے ہیں، ڈیکمپوزرز کہلاتے ہیں جبکہ اس عمل کو ڈیکمپوزیشن کہا جاتا ہے۔

The microorganisms which break down complex substances into simpler one are called decomposers while the phenomenon is called decomposition.

:Dicots

:Dicots: دو کوٹیلڈنز والے پودے۔

.Plants with two cotyledons

:Echo

:Echo: ایکو آواز کی لہروں کا انعکاس ہے۔

.Echo is a reflection of sound waves

:Electric Circuit

:Electric Circuit: وہ راستہ جس پر برقی کرنٹ بہتا ہے۔

.The path along which electric current flows

:Electric Current

:Electric Current: برقی چارجز (آزاد الیکٹرونز) کا بہاؤ۔

.(The flow of electric charges (free electrons

:Electromagnet

:Electromagnet: اگر آپ ایک لوہے کی سلاخ کے گرد تار لپیٹتے ہیں اور تار میں سے برقی کرنٹ گزرتے ہیں، تو لوہے کی سلاخ مقناطیس بن جاتی ہے۔ اس طرح کے مقناطیس کو الیکٹرو میگنیٹ کہتے ہیں۔

If you wrap a wire around an iron bar and run electric current through the wire, iron bar becomes a magnet. Such a magnet is called an electromagnet.

:Embryo

:Embryo: بیج کے اندر، ایک چھوٹا پودا ہوتا ہے جسے ایمبریو کہتے ہیں۔

.Inside the seed, there is a tiny plant called embryo

:Endosperm

Endosperm: یہ زیادہ تر پھولدار پودوں کے بیجوں کے اندر خوراک کا ذخیرہ کرنے والا ٹشو ہے۔ یہ ایمبریو کو گھیرتا ہے اور نشاستہ کی شکل میں غذائیت فراہم کرتا ہے۔ اس میں تیل اور پروٹین بھی ہو سکتے ہیں۔

It is a food reserve tissue inside the seeds of most flowering plants. It surrounds the embryo and provides nutrition in the form of starch. It may also contain oils and protein

:Endospermic Seed

Endospermic Seed: وہ بیج جن میں پختہ بیج میں اینڈوسپرم ہوتا ہے۔ یہ گودادار، روغنی، ایمبریو کو گھیرے ہوئے ہوتا ہے۔ مثال کے طور پر مونو کوٹ پودے۔

Those seeds that have an endosperm in the mature seed. It is fleshy, oily, surrounded the embryo. For example .monocot plants

:Eukaryotes

Eukaryotes: نیوکلئس والے جانداروں کو یوکاریوٹس کہتے ہیں، جیسے پروٹسٹا، فنگی، اینیمیلیا اور پلانٹی۔

.Organisms with nucleus are called eukaryotes e.g. Protista, Fungi, Animalia and Plantae

:Evaporation

Evaporation: کسی بھی درجہ حرارت پر مائع کا بخارات میں تبدیل ہونا، بغیر ابلے۔

.The change of a liquid into its vapours at any temperature, without boiling

:First Aid

First Aid: فرسٹ ایڈ کسی زخمی شخص کو دیا جانے والا عارضی علاج ہے۔

.First aid is a temporary treatment given to an injured person

:Free Electrons

Free Electrons: لوہے، تانبے، ایلومینیم اور چاندی وغیرہ جیسی دھاتوں میں، بیرونی ترین مدار میں موجود الیکٹران نیوکلئس سے مضبوطی سے جڑے ہوئے نہیں ہوتے۔ وہ والدین کے ایٹم سے الگ ہو جاتے ہیں اور ایٹموں کے درمیان خالی جگہوں میں آزادانہ طور پر حرکت کرتے ہیں۔

In metals like iron, copper, aluminium and silver etc. electrons in outer most orbits are not tightly bound with the nucleus. They detach from the parent atom and move freely in empty spaces between the atoms

:Freezing

Freezing: مائع کا ٹھوس حالت میں تبدیل ہونا۔

.Change of a liquid into its solid state

:Fuse

Fuse: ایک تیلی دھاتی تار جو اس میں سے مخصوص مقدار میں کرنٹ گزرنے دیتی ہے۔ یہ برقی آلات کو کرنٹ کے اوور فلو سے بچاتا ہے۔

A thin metal wire which allows a specific amount of current to flow through it. It saves electrical appliances from
.overflow of current

:Genetic Variation

Genetic Variation: یہ افراد میں ڈی این اے میں فرق یا آبادیوں کے درمیان فرق ہے۔

.It is the difference in DNA among individuals or the differences between populations

:Global Warming

Global Warming: جب فوسل فیول اور دیگر نقصان دہ مواد جلانے جاتے ہیں، تو کاربن ڈائی آکسائیڈ اور بہت سی دیگر گرین ہاؤس گیسیں خارج ہوتی ہیں جس کے
نتیجے میں زمین کے درجہ حرارت میں اضافہ ہوتا ہے۔

When the fossil fuels and other harmful materials are burned, carbon dioxide and many other greenhouse gases
.are released that results in increased temperature of Earth

Greenhouse Effect:

When the concentration of CO₂ in air increases, less heat energy is lost from the surface of the Earth. Therefore, the average temperature of the surface gradually increases.

Heterotrophs:

Organisms which can not make their own food. For example; animals and fungi.

Holozoic mode of nutrition:

It is a type of heterotrophic nutrition in which animals take food in their body where they digest it for absorption in the blood.

Humus:

The organic component of soil, formed by the decomposition of leaves and other plant material by soil microorganisms.

Infection:

The attack of disease causing organisms in the body of an animal or plant and manifestation of symptoms of the disease.

Key:

It is used to switch on or off the current. It completes the circuit when closed and breaks the circuit when open.

Land pollution:

Addition of unwanted and harmful materials on the land causes land pollution.

LEDS

LEDs stand for Light Emitting Diodes.

Light:

Form of energy which makes us see other things..

Luminous objects:

The objects which emit their own light.

Magnet:

A piece of iron or some other material which attracts iron containing objects.

Magnetic Compass:

An instrument containing freely suspended magnetic needle which always points in North-South direction,

Magnetic field:

The area around a magnet where the magnetic force works.

Mantle:

The layer present under the crust is known as mantle.

Matter:

Matter is anything which has mass and occupies space.

Melting:

The change of solid state of matter into its liquid state due to heat.

Microorganisms:

The organisms which cannot be seen with the help of naked eye rather can be seen with the help of microscope.

Micropyle:

A small hole in the seed coat for the absorption of water.

Milky Way:

Our solar system is in a galaxy called Milky Way.

Monocots:

Plants with one cotyledon.

Non-biodegradable:

These are the materials which cannot be decomposed into simpler substances by natural process. For example; plastic, rubber etc.

Non-Endospermic Seed:

Those seeds that do not have endosperm in the mature seed. The cotyledon are thick and fleshy. For example; dicot plants.

Non-luminous objects:

The objects which do not emit their own light.

Opaque Objects:

The objects through which no light can pass.

Open Circuit:

When the key is open, the circuit is not complete and the bulb does not glow.

Ovule:

In seed plants, the ovule is the structure that gives rise to and contains the female reproductive cells.

Parasites:

The organisms which live on or in a host to get their food.

Pathogens:

The organisms which cause diseases in other organisms.

Planets:

Heavenly bodies which are made up of rocks and/or gases and revolve around the Sun.

Plum bob:

Plum bob is basically a weight with a pointed tip present at the top.

Plumule:

The part of a plant embryo that develops into a tiny shoot.

Pollutants:

The harmful materials which cause pollution.

Pollution:

The addition of unwanted materials into the environment that cause damage to living organisms is environmental pollution.

Prokaryotes:

Organisms without nucleus are called prokaryotes. For example; Monera.

Radicle:

The part of a plant embryo that develops into a tiny root.

Rating:

The maximum current that can flow through a fuse.

Recycling:

It is a process by which we can prepare useful materials from garbage.

Reflection:

Bouncing back of light is known as reflection.

Satellite:

An object that orbits the planets.

Seed Coat:

The outer covering of the seed is a tough and hard coat.

Shadow:

Region of darkness behind an opaque object facing the source of light.

Soil:

Soil is the uppermost layer of the Earth in which plants grow. It holds plants firmly in the ground. It also provides nutrients and water to growing plants. Billions of animals also live in the soil.

Spirit level:

Spirit level is an instrument used to indicate whether the surface is horizontal or not.

:Greenhouse Effect

Greenhouse Effect: جب ہوا میں CO₂ کی مقدار بڑھ جاتی ہے، تو زمین کی سطح سے کم حرارتی توانائی ضائع ہوتی ہے۔ اس لیے سطح کا اوسط درجہ حرارت آہستہ آہستہ بڑھ جاتا ہے۔

When the concentration of CO₂ in air increases, less heat energy is lost from the surface of the Earth. Therefore, the average temperature of the surface gradually increases

:Heterotrophs

Heterotrophs: وہ organisms جو اپنی خوراک خود نہیں بنا سکتے۔ مثال کے طور پر: animals اور fungi۔

Organisms which can not make their own food. For example; animals and fungi

:Holozoic mode of nutrition

Holozoic mode of nutrition: یہ heterotrophic nutrition کی ایک قسم ہے جس میں animals اپنے جسم میں خوراک لیتے ہیں جہاں وہ خون میں absorption کے لیے اسے ہضم کرتے ہیں۔

It is a type of heterotrophic nutrition in which animals take food in their body where they digest it for absorption in the blood

:Humus

Humus: مٹی کا organic component، جو مٹی کے microorganisms کے ذریعے پتوں اور دیگر پودوں کے مواد کی decomposition سے بنتا ہے۔

The organic component of soil, formed by the decomposition of leaves and other plant material by soil microorganisms

:Infection

Infection: کسی animal یا پودے کے جسم میں بیماری پیدا کرنے والے organisms کا حملہ اور بیماری کی علامات کا ظاہر ہونا۔

The attack of disease causing organisms in the body of an animal or plant and manifestation of symptoms of the disease

:Key

Key: یہ current کو switch on یا off کرنے کے لیے استعمال ہوتا ہے۔ جب بند ہوتا ہے تو circuit مکمل کرتا ہے اور جب کھلا ہوتا ہے تو circuit توڑ دیتا ہے۔

It is used to switch on or off the current. It completes the circuit when closed and breaks the circuit when open

:Land pollution

Land pollution: زمین پر ناپسندیدہ اور نقصان دہ مواد کے اضافے سے land pollution ہوتی ہے۔

.Addition of unwanted and harmful materials on the land causes land pollution

:LEDs

LEDs: LEDs کا مطلب Light Emitting Diodes ہے۔

.LEDs stand for Light Emitting Diodes

:Light

Light: توانائی کی شکل جو ہمیں دوسری چیزیں دیکھنے میں مدد دیتی ہے۔

.Form of energy which makes us see other things

:Luminous objects

Luminous objects: وہ objects جو اپنی روشنی خارج کرتے ہیں۔

.The objects which emit their own light

:Magnet

Magnet: لوہے یا کسی اور مادے کا ٹکڑا جو لوہے پر مشتمل objects کو اپنی طرف متوجہ کرتا ہے۔

.A piece of iron or some other material which attracts iron containing objects

:Magnetic Compass

Magnetic Compass: ایک آلہ جس میں آزادانہ طور پر معلق magnetic needle ہوتی ہے جو ہمیشہ شمال-جنوب کی سمت میں اشارہ کرتی ہے۔

.An instrument containing freely suspended magnetic needle which always points in North-South direction

:Magnetic field

Magnetic field: magnet کے ارد گرد کا وہ علاقہ جہاں magnetic force کام کرتی ہے۔

.The area around a magnet where the magnetic force works

:Mantle

Mantle: crust کے نیچے موجود تہہ کو mantle کہا جاتا ہے۔

.The layer present under the crust is known as mantle

:Matter

Matter: Matter وہ کچھ بھی ہے جس کا mass ہوتا ہے اور جگہ گھیرتا ہے۔

Matter is anything which has mass and occupies space.

:Melting

Melting: حرارت کی وجہ سے matter کی solid state کا اس کی liquid state میں تبدیل ہونا۔

The change of solid state of matter into its liquid state due to heat.

:Microorganisms

Microorganisms: وہ organisms جو نگلی آنکھ سے نہیں دیکھے جاسکتے بلکہ microscope کی مدد سے دیکھے جاسکتے ہیں۔

The organisms which cannot be seen with the help of naked eye rather can be seen with the help of microscope.

:Micropyle

Micropyle: پانی کے جذب کے لیے seed coat میں ایک چھوٹا سوراخ۔

A small hole in the seed coat for the absorption of water.

:Milky Way

Milky Way: ہمارا solar system ایک galaxy میں ہے جسے Milky Way کہتے ہیں۔

Our solar system is in a galaxy called Milky Way.

:Monocots

Monocots: ایک cotyledon والے پودے۔

Plants with one cotyledon.

:Non-biodegradable

Non-biodegradable: یہ وہ مواد ہیں جنہیں قدرتی عمل سے سادہ مادوں میں تبدیل نہیں کیا جاسکتا۔ مثال کے طور پر، rubber، plastic وغیرہ۔

These are the materials which cannot be decomposed into simpler substances by natural process. For example;

plastic, rubber etc.

:Non-Endospermic Seed

Non-Endospermic Seed: وہ seeds جن میں پختہ seed میں endosperm نہیں ہوتا۔ cotyledon موٹے اور گودے دار ہوتے ہیں۔ مثال کے طور پر؛

-dicot plants

Those seeds that do not have endosperm in the mature seed. The cotyledon are thick and fleshy. For example;
.dicot plants

:Non-luminous objects

Non-luminous objects: وہ objects جو اپنی روشنی خارج نہیں کرتے۔

.The objects which do not emit their own light

:Opaque Objects

Opaque Objects: وہ objects جن سے کوئی روشنی نہیں گزر سکتی۔

.The objects through which no light can pass

:Open Circuit

Open Circuit: جب key کھلی ہوتی ہے، تو circuit مکمل نہیں ہوتا اور bulb روشن نہیں ہوتا۔

.When the key is open, the circuit is not complete and the bulb does not glow

:Ovule

Ovule: seed plants میں، ovule وہ structure ہے جو female reproductive cells کو جنم دیتا ہے اور ان پر مشتمل ہوتا ہے۔

.In seed plants, the ovule is the structure that gives rise to and contains the female reproductive cells

:Parasites

Parasites: وہ organisms جو اپنی خوراک حاصل کرنے کے لیے کسی host پر یا اس میں رہتے ہیں۔

.The organisms which live on or in a host to get their food

:Pathogens

Pathogens: وہ organisms جو دوسرے organisms میں بیماریاں پیدا کرتے ہیں۔

.The organisms which cause diseases in other organisms

:Planets

Planets: آسمانی اجسام جو چٹانوں اور / یا گیسوں سے بنے ہوتے ہیں اور سورج کے گرد گھومتے ہیں۔

.Heavenly bodies which are made up of rocks and/or gases and revolve around the Sun

:Plum bob

Plum bob: Plum bob بنیادی طور پر ایک وزن ہے جس کا نوکدار سرا اور موجود ہوتا ہے۔

Plum bob is basically a weight with a pointed tip present at the top.

:Plumule

Plumule: پودے کے embryo کا وہ حصہ جو ایک چھوٹی shoot میں تبدیل ہوتا ہے۔

The part of a plant embryo that develops into a tiny shoot.

:Pollutants

Pollutants: وہ نقصان دہ مواد جو pollution کا باعث بنتے ہیں۔

The harmful materials which cause pollution.

:Pollution

Pollution: ماحول میں ناپسندیدہ مواد کا اضافہ جو جانداروں کو نقصان پہنچاتا ہے، environmental pollution ہے۔

The addition of unwanted materials into the environment that cause damage to living organisms is environmental pollution.

:Prokaryotes

Prokaryotes: nucleus کے بغیر organisms کو prokaryotes کہتے ہیں۔ مثال کے طور پر: Monera۔

Organisms without nucleus are called prokaryotes. For example; Monera.

:Radicl

Radicl: پودے کے embryo کا وہ حصہ جو ایک چھوٹی root میں تبدیل ہوتا ہے۔

The part of a plant embryo that develops into a tiny root.

:Rating

Rating: maximum current جو fuse سے گزر سکتا ہے۔

The maximum current that can flow through a fuse.

:Recycling

Recycling: یہ ایک ایسا عمل ہے جس سے ہم کچرے سے مفید مواد تیار کر سکتے ہیں۔

It is a process by which we can prepare useful materials from garbage.

:Reflection

Reflection: روشنی کا واپس اچھلنا reflection کہلاتا ہے۔

.Bouncing back of light is known as reflection.

:Satellite

Satellite: ایک object جو planets کے مدار میں گھومتا ہے۔

.An object that orbits the planets

:Seed Coat

Seed Coat: seed کا بیرونی غلاف ایک سخت اور مضبوط coat ہے۔

.The outer covering of the seed is a tough and hard coat

:Shadow

Shadow: روشنی کے منبع کا سامنا کرنے والے opaque object کے پیچھے اندھیرے کا علاقہ۔

.Region of darkness behind an opaque object facing the source of light

:Soil

Soil: Soil زمین کی سب سے اوپری تہہ ہے جس میں پودے اگتے ہیں۔ یہ پودوں کو زمین میں مضبوطی سے پکڑتا ہے۔ یہ اگنے والے پودوں کو غذائی اجزاء اور پانی بھی فراہم کرتا ہے۔ اربوں animals بھی مٹی میں رہتے ہیں۔

Soil is the uppermost layer of the Earth in which plants grow. It holds plants firmly in the ground. It also provides nutrients and water to growing plants. Billions of animals also live in the soil

:Spirit level

Spirit level: Spirit level ایک آلہ ہے جو یہ ظاہر کرنے کے لیے استعمال ہوتا ہے کہ سطح اف

Stars:

A star is an astronomical object consisting of a luminous spheroid of plasma held together by its own gravity.

Static electricity:

Charging of bodies either positively or negatively.

Tadpole:

A tadpole is the larval stage in the life cycle of an amphibian.

Tap Root:

A straight tapering root growing vertically downwards and forming the centre from which subsidiary rootlets spring.

Translucent Objects:

The objects through which some light can pass.

Transparent Objects:

The objects through which light can pass.

Vaccines:

A vaccine is a biological preparation that improves immunity to a particular disease.

Vaccines are used to prevent viral infections.

Vectors:

The organisms which spread diseases from person to person.

Water cycle:

The transfer of water from water bodies (seas, rivers, lakes, canals, ponds etc.) to the atmosphere and its return back.

Water pollution:

Addition of unwanted and harmful materials in the water causes water pollution.

Warm blooded Animals:

Animals that can regulate and maintain constant internal body temperature. For example; birds and mammals etc.

Stars:

Stars: ایک star astronomical object ہے جو plasma کے ایک luminous spheroid پر مشتمل ہوتا ہے جو اپنی gravity سے جڑا ہوتا ہے۔

A star is an astronomical object consisting of a luminous spheroid of plasma held together by its own gravity.

Static electricity:

Static electricity: bodies کو positively یا negatively charge کرنا۔

Charging of bodies either positively or negatively.

Tadpole:

Tadpole: ایک tadpole amphibian کے life cycle میں larval stage ہے۔

A tadpole is the larval stage in the life cycle of an amphibian.

Tap Root:

Tap Root: ایک سیدھی tapering root جس سے subsidiary rootlets نکلتے ہیں۔ جو عمودی طور پر نیچے کی طرف بڑھتی ہے اور وہ مرکز بناتی ہے

A straight tapering root growing vertically downwards and forming the centre from which subsidiary rootlets spring.

Translucent Objects:

Translucent Objects: وہ objects جن سے کچھ روشنی گزر سکتی ہے۔

The objects through which some light can pass.

Transparent Objects:

Transparent Objects: وہ objects جن سے روشنی گزر سکتی ہے۔

The objects through which light can pass.

Vaccines:

Vaccines: ایک vaccine biological preparation ہے جو کسی خاص بیماری کے خلاف immunity کو بہتر بناتی ہے۔ Vaccines viral کو روکنے کے لیے استعمال ہوتے ہیں۔ infections

A vaccine is a biological preparation that improves immunity to a particular disease. Vaccines are used to prevent viral infections.

Vectors:

جو بیماریوں کو ایک شخص سے دوسرے شخص میں پھیلاتے ہیں۔ organisms وہ Vectors:

The organisms which spread diseases from person to person.

Water cycle:

Water cycle: پانی کا water bodies (seas, rivers, lakes, canals, ponds) سے atmosphere (غیرہ) میں منتقل ہونا اور اس کا واپس آنا۔

The transfer of water from water bodies (seas, rivers, lakes, canals, ponds etc.) to the atmosphere and its return back.

Water pollution:

Water pollution: پانی میں ناپسندیدہ اور نقصان دہ مواد کے اضافے سے ہوتی ہے۔

Addition of unwanted and harmful materials in the water causes water pollution.

Warm blooded Animals:

Warm blooded Animals: birds اور mammals جو مستقل اندرونی جسمانی درجہ حرارت کو منظم اور برقرار رکھ سکتے ہیں۔ مثال کے طور پر؛ animals وہ

Animals that can regulate and maintain constant internal body temperature. For example; birds and mammals etc.

لغت

:غذائیت کا جذب کرنے والا طریقہ

غذائیت کا ایک ہیٹروٹروفک طریقہ جس میں فنگی جانداروں کے جسموں پر ہاضمے کے خامروں کو خفیہ کرتی ہے۔ یہ انزائمز پیچیدہ خوراک کے مالیکیولز کو چھوٹے جذب کرنے والے مالیکیولز میں منتقل کرتے ہیں جو جانداروں کے ذریعے آسانی سے جذب ہو جاتے ہیں۔

:فضائی آلودگی

ہوا میں ناپسندیدہ اور نقصان دہ مواد کا اضافہ فضائی آلودگی کا سبب بنتا ہے۔

:اینٹی بائیوٹکس

اینٹی بائیوٹکس وہ دوائیں ہیں جو بیکٹیریل انفیکشن کے علاج کے لیے استعمال ہوتی ہیں۔ مثال کے طور پر پینسلین

:مصنوعی سیارچے

انسان کے بنائے ہوئے آلات جو زمین کے گرد چکر لگاتے ہیں۔

:ایٹم

تمام مادی اشیاء انتہائی چھوٹے ذرات سے بنی ہیں جنہیں ایٹم کہتے ہیں۔

:آٹوٹروفی

وہ جاندار جو اپنی خوراک خود بناسکتے ہیں۔ مثال کے طور پر؛ کچھ بیکٹیریا اور سبز پودے

:بیٹری

ایک آلہ جو الیکٹرانوں کو سرکٹ میں بہنے کے لیے توانائی فراہم کرتا ہے۔

:بایو ڈیگریڈیبل

یہ وہ مواد ہیں جو قدرتی عمل کے ذریعے آسان مادوں میں گل کر پودوں اور جانوروں کے دوبارہ استعمال کے لیے مٹی میں مل سکتے ہیں۔ مثال کے طور پر؛ کاغذ، کپڑے، جانوروں کا گوشت وغیرہ

:اہلنا

ایک مخصوص درجہ حرارت پر مائع کا اس کی گیس کی شکل میں تبدیلی۔

:بلب

بلب برقی توانائی کو روشنی اور حرارت میں منتقل کرتا ہے۔ یہ سرکٹ میں کرنٹ کے بہاؤ کا پتہ لگانے کے لیے استعمال ہوتا ہے۔

:درجہ بندی

مماثلت اور اختلافات کی بنیاد پر جانداروں کو گروہوں میں تقسیم کرنا۔

:بند سرکٹ

جب چابی بند ہو جائے گی، سرکٹ مکمل ہو جائے گا اور بلب چمکے گا۔

:سرد خون والے جانور

وغیرہ amphibians وہ جانور جو ماحول میں تبدیلی کے ساتھ اپنے اندرونی جسم کے درجہ حرارت کو کنٹرول نہیں کر سکتے۔ مثال کے طور پر؛ رینگنے والے جانور، مچھلی،

:گاڑھا ہونا

گیس (بخار) کا اس کی مائع شکل میں تبدیلی۔

:جڑنے والی تاریں

مربوط تاریں ایک سرکٹ میں برقی رو بہنے اور جڑنے کا راستہ فراہم کرتی ہیں۔
سرکٹ کے مختلف حصے۔

:کور

کور زمین کا اندرونی گرم ترین حصہ ہے۔

Cotyledons:

یہ جنین کا وہ حصہ ہے جس میں ذخیرہ شدہ خوراک ہوتی ہے۔

:کرسٹ

کرسٹ زمین کی بیرونی تہ ہے۔

:ڈیکپوزر

ہیٹروٹروف جس جو اپنی خوراک مردہ نامیاتی اجسام سے حاصل کرتے ہیں۔ مثال کے طور پر؛ بیکٹیریا اور فنگس

:گلنا

وہ مائیکروجنرم جو پیچیدہ مادوں کو آسان میں توڑ دیتے ہیں ان کو ڈیکپوزر کہا جاتا ہے جبکہ اس رجحان کو سڑنا کہا جاتا ہے۔

:ڈیکوٹس

. کے ساتھ پودے cotyledons دو

:بازگشت

ایکو آواز کی لہروں کا عکس ہے۔

:الیکٹریک سرکٹ

وہ راستہ جس کے ساتھ برقی رو بہہ رہی ہے۔

:برقی کرنٹ

برقی چارج کا بہاؤ (مفت الیکٹر ان)۔

:برقی مقناطیس

اگر آپ لوہے کی بار کے گرد تار لپیٹتے ہیں اور تار کے ذریعے برقی کرنٹ چلاتے ہیں تو لوہے کی بار مقناطیس بن جاتی ہے۔ ایسے مقناطیس کو برقی مقناطیس کہا جاتا ہے۔

:جنین

بیج کے اندر ایک چھوٹا سا پودا ہوتا ہے جسے امبریو کہتے ہیں۔

Endosperm:

یہ زیادہ تر پھولدار پودوں کے بیجوں کے اندر نوڈریزروٹھو ہے۔ یہ جنین کے گرد گھیرا ہوا ہے اور نشاستے کی شکل میں غذائیت فراہم کرتا ہے۔ اس میں تیل اور پروٹین بھی شامل ہو سکتے ہیں۔

Endospermic بیج

وہ بیج جو بالغ بیج میں اینڈوسپرم رکھتے ہیں۔ یہ گوشت دار، تیل والا، امبریو سے گھرا ہوا ہے۔ مثال کے طور پر مونو کوٹ پودے۔

:ایوکریوٹس

کہا جاتا ہے جیسے پروٹیسٹا، فنگی، اینیمالیا اور پلانٹی۔ eukaryotes نیوکلئس والے جانداروں کو

:بخارات

کسی بھی درجہ حرارت پر، بغیر ابلے مائع کا اس کے بخارات میں تبدیل ہونا۔

:اینڈائیٹھی امداد

ابتدائی طبی امداد ایک عارضی علاج ہے جو کسی زخمی شخص کو دیا جاتا ہے۔

:مفت الیکٹران

لوہا، تانبا، ایلومینیم اور چاندی وغیرہ جیسی دھاتوں میں زیادہ تر بیرونی مداروں میں الیکٹران مرکز کے ساتھ مضبوطی سے بندھے نہیں ہوتے۔ وہ پیرنٹ ایٹم سے الگ ہو کر حرکت کرتے ہیں۔

: بیماری کی علامات کا اظہار

: کلید

یہ کرنٹ کو آن یا آف کرنے کے لیے استعمال ہوتا ہے۔ یہ بند ہونے پر سرکٹ کو مکمل کرتا ہے اور کھلنے پر سرکٹ کو توڑ دیتا ہے۔

: زمین کی آلودگی

زمین پر ناپسندیدہ اور نقصان دہ مواد کا اضافہ زمین کی آلودگی کا سبب بنتا ہے۔

ایل ای ڈی ایس

ایل ای ڈی لائٹ ایسٹنگ ڈائیوڈس کے لیے کھڑے ہیں۔

: روشنی

توانائی کی شکل جو ہمیں دوسری چیزوں کو دیکھنے پر مجبور کرتی ہے۔

: چمکیلی اشیاء

وہ اشیاء جو اپنی روشنی خود خارج کرتی ہیں۔

: مقناطیس

لوہے کا ٹکڑا یا کوئی دوسرا مواد جو لوہے پر مشتمل اشیاء کو اپنی طرف متوجہ کرتا ہے۔

: مقناطیسی کمپاس

آزادانہ طور پر معطل مقناطیسی سوئی پر مشتمل ایک آلہ جو ہمیشہ شمال-جنوبی سمت کی طرف اشارہ کرتا ہے،

: مقناطیسی میدان

مقناطیس کے ارد گرد کا علاقہ جہاں مقناطیسی قوت کام کرتی ہے۔

: مینٹل

کرسٹ کے نیچے موجود پرت کو مینٹل کہا جاتا ہے۔

: معاملہ

مادہ ہر وہ چیز ہے جس میں کمیت ہوتی ہے اور وہ جگہ لیتا ہے۔

: پھلنا

گرمی کی وجہ سے مادے کی ٹھوس حالت کا مائع حالت میں تبدیل ہونا۔

: نائٹروجنزم

وہ جاندار جو نگی آنکھ سے نہیں دیکھے جاسکتے بلکہ خوردبین کی مدد سے دیکھے جاسکتے ہیں۔

: نائٹروپائل

پانی کو جذب کرنے کے لیے بیج کوٹ میں ایک چھوٹا سا سوراخ۔

: آکائیٹنگا

ہمارا نظام شمسی ایک کہکشاں میں ہے جسے آکائیٹنگا کہا جاتا ہے۔

: مونو کوٹس

. کے ساتھ پودے cotyledon ایک

: غیر بایوڈیگریڈیبل

یہ وہ مواد ہیں جو قدرتی عمل کے ذریعے آسان مادوں میں گل نہیں سکتے۔ مثال کے طور پر؛ پلاسٹک، ربڑ وغیرہ

: غیر اینڈوسپرک بیج

موٹے اور مانسل ہوتے ہیں۔ مثال کے طور پر؛ ڈیکوٹ پودے cotyledon وہ بیج جو پختہ بیج میں اینڈوسپریم نہیں رکھتے۔

: غیر چمکیلی اشیاء

اشیاء